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THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO
HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

EDITED BY

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FLOWERS AND FERNS OF THE U. S., ETC.

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ILLUSTRATIONS.

Portrait of Robert Buist,	Frontispiece
Apple, Isham Sweet,	274
Bouvardia "A. Neuner,"	367
Burbridgea nitida,	335
Coleus, New Hybrid,	7
Croton Mooreanus,	105
Dreer's New Coleus,	76
Fuchsias, Standard,	198
Heating Apparatus for Small Conservatories,	140
Heating by a Lime kiln, Plan of,	76
Liberian Boy and Kittens,	187
Maurandia Barclayana,	89
Measuring Height of Trees—Diagram,	53
Orchids, Several Genera,	73
Park Scene, European, Ground Plan,	66
Pear, Seckel, The Original Tree,	270
Pear, The Kieffer,	48
Propagating, Old Method of,	236, 237
Roses, Standard,	196
Sash Bars,	266
Trimmed Yew Tree,	34
Wilson's School House, near Gray's Ferry,	248

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Vol. XXII.

JANUARY, 1880.

Number 253.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

In Philadelphia and many other parts of the eastern section, the month between the middle of November and middle of December was a very mild period for an American winter, and the garden in many respects was very agreeable. Coniferous trees, with their great variety of tints and habits were particularly beautiful, and since the introduction of colored-leaved evergreens, suggested possibilities that could not have been thought of years ago. There are now Golden Retinosporas, Arbor Vitæ and other things,—bronzes, greys and purples,—which would make excellent combinations in the hands of good artists. Not only are these prettily tinted plants to be found among coniferæ; but among Mahonias, Euonymuses and similar evergreen things are much material that would enter gaily into combinations for these elegant winter effects, when snow was not too deeply on the ground. Of course these evergreen gardens would need to have some protection from wind by plantations of larches or some other wind-break. All evergreens in a state of nature are more or less gregarious. They crowd together and shelter one another. They do not mind frost so much as they mind the wind. When therefore we stick out plants like a Mahonia

or a Yew, or an evergreen Euonymus, where the boreal blasts have full sweep against them, we subject them to tests nature never intended for them, and it is not fair when they succumb under such treatment to write to your favorite paper and tell the story of their tenderness under your own wrong. There are no doubt many gardens where shelter for beautiful evergreens cannot be provided,—but those who can have it, know how many hardy things there are.

The GARDENER'S MONTHLY has repeatedly called attention to the advantages of thick planting, not only for the shelter it affords in the winter season, but also because it enables one to have pretty scenes in trees, shrubs and garden effects at once, and without waiting a whole life time to see the full effects of the landscape gardener's plan. But this thick planting entails the duty of annual thinning out, and pruning, and this is a very good season to think about it.

Wherever any part of a tree does not grow freely, pruning of such weak growth, at this season, will induce it to push more freely next year. All scars made by pruning off large branches should be painted or tarred over, to keep out the rain. Many fruit trees become hollow, or fall into premature decay, from the rain penetrating through old saw cuts made in pruning. Also,

the branches should be cut close to the trunk, so that no dead stumps shall be produced on the tree, and bark will readily grow over. Many persons cut off branches of trees in midsummer, in order that the returning sap may speedily clothe the wound with new bark, but the loss of much foliage in summer injures the tree, and besides painting the scar removes all danger of rotting at the wound.

COMMUNICATIONS

PUBLIC PARKS AND CEMETERIES.

BY WALTER ELDER, PHILADELPHIA.

The "Notes of a Southern Cemetery," in August, "Rural Cemeteries" in October, and "Disgraceful Public Parks" in November much interested me, as subjects long on my mind, and worthy of the attention of every intelligent horticultural journal. The last one has too harsh a heading to accomplish any improvement. Mild persuasive argument is more powerful in convincing wrong doers of the errors of their ways. It would be much better to show that efforts at real improvement, would result better to a good name, and actual benefit, than neglect of one's duties will do.

If properly shown to the managers, surely every cemetery company would see that it was to its interest to have a skilled gardener. One of this class would require no higher wages in many cases, than an ignoramus,—and even in larger enterprises the gardener and the engineer would both work together for each others' benefit. Some people talk of politics as the reason why unskilful men are in charge of park gardens and other public positions; please let me ask how many skilled gardeners are there in the Philadelphia cemeteries, where there is no politics to interfere in the matter? There are a very few intelligent and worthy exceptions,—but the majority are no better than those who get places in public work and under political influence. There are good politicians and there are corrupt ones; there are good nurserymen, and nurserymen who are governed by avaricious motives, who would crowd in stock good bad and indifferent, and men to suit, if it served their avaricious purposes; and one kind of management is no worse than the other.

What we want is honest, intelligent management in public parks and city work. We want men who will not "bow the knee to Baal."

Philadelphia has long been famous for her skilled horticulturists. She is known all over the Union as the city of good gardeners.

[All that Mr. Elder says is true, but he has not told us what we are all longing to know—how to get these intelligent people into the places where their knowledge will tell. His point on the wretched material often found in situations wholly outside of politics is a very good one, yet there is probably a much better class as a general thing in these situations than find their places in city grounds.

And we really think the trouble comes from what we have stated. That is to say, A., an excellent gentleman, does not want the office. B., a poor stick, does want it. A. and his friends remain at home and do nothing, believing that the office should seek the man. B. has his friends actively at work. They tell C. D. E. F. and so on, what a magnificent fellow B. is, and that if he is elected there will be work for all, and perhaps more which the demagogue knows how to put forth plausibly, and the result is that B. goes into the office.

Now, the problem for our good-wishing friends to solve is, how to get the office to the good man who does not want it, and to keep out the bad but industrious worker who is not fit for it. —ED. G. M.]

EDITORIAL NOTES.

THE PLEASURES OF GARDENING.—In conversation with Mr. Bayley Potter, the distinguished English Member of Parliament, who has recently been making observations through this country, in answer to questions by the writer of this as to his impressions, he thought Americans superior in many respects to his own countrymen, while in others they seemed to be deficient. Among other things he thought Americans more industrious, but less disposed to take time to enjoy the fruits of their labors than his own countrymen were. This seems to us particularly true as regards gardening. Even many who have gardens, and gardeners, take but little personal interest in what is going on, while English ladies and gentlemen are constantly employed. We are reminded of this by the following paragraph.

"The Marquis of Drogheda is reported to have met with a rather serious accident lately while pruning some shrubs in his pleasure gardens at Moore Abbey, Co. Kildare. In making a blow

at a stump, he unfortunately missed the wood and struck his foot, inflicting a severe gash, but the wound is not dangerous."

IMPROVED ROADS.—The Woodbury *Liberal Press* tells of one of our correspondents, John H. Twells, who has gone to work and improved the public road in front of his property, at his own expense. It has always seemed to us that the road laws of many of our States are very defective. Often the preliminary step necessary before a good road can be made, requires as much loss of time and money to one or two public spirited men, as would nearly build the whole road. Every little bit of a road has to have a special and tremendous effort made, before it can be done. All this could be very well done under a general law. There can be no question but the condition of the public roads is the measure of the civilization of the inhabitants. At present as we know instances, property owners are often forced to pay for expensive roads out of all proportion to the value of their property,—and at other times roads lie as perpetual mud holes, which could be made good at a very small per centage of the value of property along their course. In Pennsylvania, roads are made at the expense of the property owners, and after once made, kept in repair at the public expense. We know of many roads in a dreadful state that could be macadamized by an assessment of five per cent. on the line property. Why cannot a general law be enacted, whereby when this is the case, a road should come "naturally" or without any tremendous effort?

AZALEA MOLLIS.—It is not as generally known as it might be, that this particular species of hardy azalea is far superior to the old class of Belgian varieties; and that varieties almost as numerous as the old kind gave us have been produced. The *Gardener's Weekly Magazine* has recently given an account of their great improvement in continental gardens, from which we take the following:

"The varieties of Azalea mollis forming part of the group referred to in the preceding note were unquestionably the most important subjects of which it consisted, for they bloom so profusely, force so well, and are so wonderfully attractive, that it would be no easy task to overpraise them. When Messrs. H. Lane & Son first presented several of the varieties to the notice of English horticulturists some five or six years ago, I formed a very high opinion of them, and

the more I have seen of them the more thoroughly am I convinced of their merits for decorations in and out of doors. The majority of the varieties of A. mollis, or rather of those known under name, were raised by Van Houtte, and are quite hardy in this country. They are somewhat similar in habit to the well-known Ghent Azaleas, and deciduous. The flowers are nearly as large as those of a hardy rhododendron, and stout and waxy in texture; the colors comprise red, yellow, salmon, primrose, white, and flesh color, and afford a pleasing contrast to the colors of the flowers with which they have to be associated. There are about twenty-four varieties in trade collections under name, and of these the undermentioned can be specially recommended to the notice of those who require a few of the best only: Alphonse Lavallée, orange shaded with red; Baron de Constant Rebecque, nankeen; Charles Kekuté, orange washed salmon-red; Charles Francois Luppis, rose shaded magenta; Chevalier A. de Reali, straw-white; Comte Papadopoli, rose shaded with orange; Comte de Gomer, bright rose; Comte de Quincey, bright yellow; Consul Pécher, bright rose; Ernest Bach, bright salmon; Madame Caroline Legrelle Dhanis, rose. With reference to their cultivation, it may be said that, like the varieties of Azalea pontica, they can be grown in beds and be lifted and potted in the Autumn, and they are so grown if I remember rightly, by Mr. Douglas, the able gardener at Loxford Hall, who had a fine display the other day, and regards them as most valuable acquisitions."

LILIUM CAROLINIENSE.—American Lilies have been supposed to have no fragrance, but Mr. Watson, in a letter to Mr. Vick, says the above named old but little known species is sweet scented.

CULTIVATING THE EPIGEA REPENS.—Correspondents often complain they cannot cultivate the trailing arbutus. It does very well when ordinary skill is called in. It does not like to be treated as a cabbage or tomato plant.

NEW OR RARE PLANTS.

TEA ROSE JEAN DUCHER.—The rose without a thorn is not deemed of much importance. This ought to be an extra valuable species, for it is the thorniest Tea Rose that ever was per-

haps seen, as represented in a chromo in the *Garden*. It is of the bronzy yellow class.

HERPESTES REFLEXA.—A NEW AQUARIUM PLANT.—Our country is so full of interesting aquatics of which little use has been made, that it is doubtful whether any new kinds will be thought desirable. It may be different some day, and then the following described plant which we find in the *Garden* may be worth introducing: "It is an interesting fact in connection with a large number of aquatic plants that their foliage is cut or divided into numerous fine segments. Some noticeable examples of this in our native plants are the Water Violet, *Hottonia palustris*, and the Spiked Myriophyll (*Myriophyllum spicatum*), the Water Crowfoots (*Ranunculi*), and others. There are none, however, that excel in beauty and delicately-cut foliage this pretty exotic, which may be seen in the Water Lily House at Kew. The plant is wholly submerged except a few inches of each shoot, which is furnished with whorls of finely cut pectinate or comb-like foliage, very similar to that of a *Neptunia* or the plants just named. The pleasing emerald-green of the leaves considerably enhances the beauty of the plant, and more particularly so at the time we saw it, when the delicate azure-blue flowers of *Nymphaea stellata* were springing up amongst its elegant feathery foliage. It belongs to the Figwort family, and is a native of Brazil."

IMPROVED PYRETHRUMS.—These are now as numerous and quite as beautiful as improved chrysanthemums, with the advantage of blooming through early Autumn to frost. We note among the leading colors crimson, rose, purple, yellow and white,—and there are double as well as single forms. It is perhaps rather hardier than the ordinary chrysanthemum.

IMPROVED GARDEN MARIGOLDS.—The common garden marigold, *Calendula officinalis*, has now been improved by the German florists. One called Meteor has a stripe of light yellow down the centre of each deep orange strap-shaped corolla,—“down the petals” as the florist, if not the botanist would say.

SALVIA FARINACEA.—This pretty blue *Salvia*, common in Southern Kansas, and at one time known in our gardens as *Salvia Pitcheri*, is just becoming a popular herbaceous plant in Europe.

TWO NEW ORNAMENTAL GRASSES.—The *Holcus lanatus aureus* is a charming grass, un-

like any other with which I am acquainted. I found it on the wayside near Chilwell last spring. Its leaves tinted with gold, are very handsome. The other, *Alopecurus pratensis argenteus*, is also distinct, the flower-stems being ivory-white and the foliage beautifully striped with green and white. This is also a roadside Grass, and one which was found last winter on the Burton Road, near Derby.—*Garden*.

SCRAPS AND QUERIES.

TREES AND YELLOW FEVER.—Mr. Stewart, who has resided thirty years in Memphis, writes to the *Memphis Avalanche* in favor of a large park with hospital to which any person with contagious disease be at once removed. He combats the idea that Memphis is dirty, and contends that it has always compared favorably with any city in the South. He protests against the expenditure of vast sums of money in sewerage a small city like Memphis at an expense that would only be warranted in wealthy communities like St. Louis or New York, when there is no more likelihood that “filth” had any more to do with the fever in Memphis than in many much more dirty places which were wholly exempt. He favors rather a sort of Board of Cleanliness, which shall clear up everything once a week, and the material be used for fertilizing purposes on the hospital farm,—in this way making cleanliness pay its expenses, instead of costly culverts which sweep the fertilizers into the Mississippi.

It would seem as if some distinct understanding should be had as to the cause of the yellow fever, before immense sums are expended on mere guess work. One of the worst places for yellow fever in 1878 was Grenada, Miss. The writer of this spent a little time there the year before, and it seemed to him there were few cleaner or more pleasant places,—and the idea that “filth” had anything to do with the disease there is ridiculous. Canton, also, he found a remarkably healthful place in all that is usually considered sanitary conditions. Cleanliness always aids health everywhere. No effort, in reason, is too great to secure it; but some of the efforts of public bodies under this excuse are as ridiculous as they are costly. During the yellow fever scare of 1878, a city in New Jersey had men continually employed mowing down the weeds all around, and the stench from the rotting material in every direction was awful,—and all this in the name of the “Public Health.”

BLUE GRASS IN ARKANSAS.—J. M. B., Fayetteville, Ark., writes: “I noticed in the *Tribune* of some weeks ago a statement by the Agricultural (?) editor, that blue grass would not do well if sown in September. On the 20th of last September I put in three acres of ground that had been well prepared, about ten bushels of Kentucky blue grass seed, raked it in lightly and rolled. It is now a solid mass of green. Do you think I will have all this work to do over again!”

[Indeed we do not think you will have it to do all over again. It is strange how the idea ever prevailed that grass will not grow in the South. The writer of this has seen in Mississippi and Louisiana as good clover and grass as he ever saw in the North. In Arkansas he has seen grass growing,—though not as farm crops or as lawns,—but could see no more reason why it should not do in masses like these referred to, than as individual scattered plants. In the old times when little attention was given to anything but cotton, it was assumed that nothing but cotton and corn would grow in the South, but we feel sure that under intelligent guidance, suiting species as to locations and other circumstances the old time assumptions are groundless.—ED. G. M.]

RAISING SEEDLING ROSES.—A “Queer one” writes: “In your answer to M., last month you say that new Roses are ‘generally originated’ from seed. Why generally? How can they be raised any other way? I should say New Roses are always raised from seed.”

[Just there “Queer one” would be wrong. There are not a few good roses that were raised from bud variation. One branch produced flow-

ers different from others on the same plant, which, being cut off and rooted, preserved its identity through all time,—though sometimes, as in the Beauty of Glazenwood, going back to the original.—ED. G. M.]

THE DWARF CATALPA.—Says a Western correspondent: “Are you not mistaken for just this once, when you say in the December number, ‘The Dwarf Catalpa is the *C. Kämpferi* of the nurseries, whatever it may be botanically;’” and then proceeds to give a list of nurseries in which it is marked as *C. Bungei*. The writer of this believes himself to be responsible for its earliest introduction and dissemination in this country, and supposed he knew what plant was in the nurseries under this name. He has however reviewed the matter since the receipt of the above, and finds that he was more than right; for both botanically and horticulturally the one which “flowers” is *Catalpa Bungei*, and the bushy flowerless one,—the one with leaves just like the common one,—is *Catalpa bignonioides*, variety *Kämpferi*.”

AMPELOPSIS VEITCHII, AND AMPELOPSIS TRICUSPIDATA.—A. G., Cambridge, Mass., asks: “Are we to understand from the statement on page 356, (Dec. No.) that Messrs. Ellwanger & Barry have four plants under the two names of *Ampelopsis Veitchii* and *A. tri-cuspidata*. It is so stated, but I am not quite sure that this is meant.”

[A. G., will accept our thanks for the grammatical correction,—though if we were to imitate his style and be “not quite sure” of his meaning, we might say that we think there were really more than four plants under these two names.—ED. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

One time window gardening was universally popular. Then came heaters and illuminating gas, instead of open grates and candles, and the pretty room flowers were banished to the houses of the poor. In almost all our large cities we had to go to the poor quarters to see the window flowers, and even to this day in the large Paris hotels, it is chiefly in the fourth stories

where the chamber-maids have their sleeping-places, that the floral adornments of streets are seen. But there has been a pleasant change of late years, especially in our own land. The wealthy and refined are taking to house gardening. By the judicious employment of screens and plant cabinets, the deleterious atmosphere of night rooms is excluded, and they can now have house plants as formerly. How much the love of window plant culture is spreading, we can judge from our correspondence, which is

continually bringing before us the "want to know" of some friend about soil, or light, or water, to which we always take pleasure in replying.

The best kind of earth to use is the surface soil, containing the spongy mass of surface roots, from a wood; the first two inches of an old pasture field; the turfy spongy mass called peat, from sandy bogs or swamps; a little well decayed hot-bed manure; some sharp sand. These are now about the only "elements" that the most skillful gardener cares to have beside him; and many a good gardener has to find himself minus of some of these and be satisfied.

The soil for potting should be used rather dry; that is, it should be in such a condition that it will rather crumble when pressed, than adhere closer together. Large pots—those over four inches, should have a drainage. This is made by breaking up broken pots to the size of beans, putting them in the bottom a quarter or half an inch deep, and putting about an eighth of an inch of old moss or any similar rough material over the mass of "corks" to keep out the earth from amongst it. Little benefit arises from draining pots below four inch, the moisture filtering through the porous pots quite fast enough; and the few pieces of "drainage" often thrown in with the soil placed right over, is of little or no use.

Ferneries are now so deservedly popular, that we must have a word to say for them at times, though their management is so simple there is little one can say. It is probably their ease of management, and the great results obtained for the little outlay of care that has rendered them so popular. It should not, however, be forgotten that the case in which they are enclosed is not to keep out the air, but to keep in the moisture, as ferns will not thrive in the dry atmosphere of heated rooms. A few minutes airing every day will, therefore, be of great benefit to them. Decayed wood, (not pine), mixed with about half its bulk of fibrous soil of any kind, and a very small proportion (say a tenth of the bulk) of well-rotted stable manure, makes a good compost. Most kinds particularly like well-drained pots. This is usually effected by filling a third of the pots in which the ferns are to grow with old pots broken in pieces of about half an inch square, on which a thin layer of moss is placed, before filling the pots, to keep out the soil from choking the drainage. We would particularly emphasize the remarks about

draining, for one great enemy of the window-gardener is over-watering. There are far more plants injured in this way than by being allowed to become too dry.

The more freely a plant is growing, the more water will it require; and the more it grows, the more sun and light will it need. In all cases, those which seem to grow the fastest, should be placed nearest the light. The best aspect for room plants is the south-east. They seem like animals in their affection for the morning sun. The first morning ray is worth a dozen in the evening. Should any of our fair readers find her plants, by some unlucky calculation, frozen in the morning, do not remove them at once to a warm place, but dip them in cold water, and set them in a dark spot, where they will barely escape freezing. Sunlight will only help the frost's destructive powers.

Window plants suffer much at this season from the high and dry temperature at which it is necessary for human comfort to keep our dwellings. Air can seldom be admitted from the lowness of the external temperature. Saucers of water under the plants do much to remedy the aridity under which room plants suffer. In such cases, however, so much water must not be given to plants as to those without saucers. The water is drawn up into the soil by attraction; and though the surface will appear dry, they will be wet enough just beneath.

Where the air is dry, if in rooms or greenhouses, frequent syringings are of much benefit to plants. Besides, cleanliness keeps down insects and checks diseases in plants as in animals. Most old fashioned lady gardeners (and may we ever bless them for the many lessons they have taught us!) take every opportunity to set their window-plants out of doors whenever a warm shower happens to occur. In winter a rain at a temperature of 40° or 45°, which often occurs, might be called a "warm shower." Cold water does not have half the injurious effects on plants that cold air has. When plants get accidentally frozen, dip them at once in cold water and set them in the shade to thaw, as already stated.

It is better to keep in heat in cold weather by covering, where possible, than to allow it to escape, calculating to make it good by fire-heat, which is, at best, but a necessary evil. Where bloom is in demand, nothing less than 55° will accomplish the object; though much above that is not desirable, except for tropical hot-house plants. Where these plants are obliged to be

wintered in a common greenhouse, they should be kept rather dry, and not be encouraged much to grow, or they may rot away.

COMMUNICATIONS.

NEW HYBRID COLEUS.

BY PETER HENDERSON, JERSEY CITY HEIGHTS, N. J.

I herewith enclose you specimens of leaves of two dozen of the new Hybrid Coleus which have been originated last Summer from seeds, the product of Chameleon crossed with Multicolor and Pictus. If you will place them on a white surface, I think you will say that hardly ever has any plant made such a decided advance as these coleus have made in one season. The cut represents one of the most distinct, which we have



NEW HYBRID COLEUS.

named Spotted Gem; the markings on the orange yellow surface, run through all the shades of pink, crimson, violet maroon, almost to black. The next in value we think is Glory of Autumn, whose shades give nearly all the tints of a forest in October. This proved to be an excellent bed-

der in the open air, which is not likely to be the case with many of these new hybrids; but even if they fail in that, as plants for greenhouse and window garden culture, the wonderful beauty and variety of their leaf markings well entitles them to a place there.

We have this time completely beaten our European contemporaries, for the new varieties we have received from England this season are perfectly worthless compared with our American varieties.

It is a singular circumstance that these fine varieties of Hybrid Coleus, should have originated from four different sources, and nearly all of the same strain at one time, for we find them to have been originated at Philadelphia, Ridge-wood, N. J., Baltimore, Md., and Worcester, Mass.—all in 1879. It is hard to account for such coincidences which occasionally occur in new varieties of plants. Although we had been growing tens of thousands of plants annually for nearly ten years of the well known carmine colored *Bouvardia elegans*, it was only in 1870, I think, that the two white varieties, *B. Vreelandii* and *Davidsonii* appeared, almost simultaneously in the greenhouses of the gentlemen whose names they bear.

[These were very beautiful and in great variety.—ED. G. M.]

WINTER CLIMBERS.

BY MRS. MARY STUART SMITH, UNIVERSITY OF VIRGINIA.

The two divisions under which these interesting plants naturally group themselves, when considered for practical purposes, are the hardy and the tender; in other words, such as grow out of doors and lend to the attractions of Summer, or such as need protection in the Winter months and serve to adorn our parlors and green houses during that inclement season. At this time of year the latter class are invested with a livelier interest, for more and more is it becoming imperative upon all persons of refined taste, to make the apartments in which they live reflectors in some sort of the spirit which animates their possessors. Nothing can add a greater charm to a room than a few well-tended vines and flowers, be its furniture otherwise ever so plain.

The newest and most beautiful climber we have seen in use as a window plant is the climbing fern; the only objection to its culture being a rather delicate habit of growth, necessitating

more care on the part of the cultivator than it is always convenient to bestow. Like all ferns, it loves shade, moisture and a rich, well-rotted, wood-soil. If these conditions can be complied with, no plant will give greater satisfaction, for it is surpassingly graceful and pretty. To grow climbers successfully in the house, one should be provided with as many trellis-frames (of wire rather than wood) as there are vines to rear. Of any kind named in this article, one would be sufficient to fill a window, and furnish a pretty background for lower growing plants arranged in front. For persons who do not affect novelty; the long used German Ivy, *Senecio scandens*, is most desirable, for if planted in any moderately rich soil, and regularly supplied water, it will flourish and throw out its fresh green tendrils with such rapidity, as to form a very bower in a wonderfully short space of time. German Ivy grows freely from the slip, but a well started plant may be bought of a florist for a mere trifle, and thus time be saved. There are several new sorts recently introduced which have variegated foliage, and also bear quite pretty blossoms. The smilax is so well known and universally admired as not to have suffered even under the weight of its long botanical name, *Myrsiphyllum asparagoides*. Its bright, glossy foliage furnishes the prettiest green with which to set off the flowers of a bouquet, or twine into a wreath, which circumstance alone renders it an indispensable addition to even a small collection of plants. The dry heat of rooms makes the greatest difficulty in preserving climbers in a flourishing condition during the really cold weather, when the outer air cannot be freely admitted. Anthracite coal fires are most objectionable on this score, bituminous coal having been proved by experience to be much less inimical to the growth and well being of plants. It is advisable in either case to have a vessel filled with water, placed near your plants, even though they are thoroughly supplied with a daily allowance of water from a watering pot. A careful sponging of their leaves, once a week, has been found very beneficial to house-plants. The pots holding them, should, of course, be placed in a tub, or large waiter to receive the drippings, while the plants are being submitted to this process. Of desirable blooming climbers for Winter decoration, we might suggest almost any variety of the *Tropæolum*, with its orange or scarlet blossoms; the passion flower, to be found in blue, crimson, or white, each

beautiful and interesting; ivy-leaved geraniums, and the *Begonia glaucophylla scandens*, with its free growth and splendidly gorgeous bloom.

BLACK RUST.

BY PETER HENDERSON.

In Professor Burrill's essay which you published in the December No. on this subject, he says that the mould (mildew) and the black rust that appears on Verbenas have been often confounded. He must have been a very green hand indeed who would do so, for they are quite as distinct from each other as the mealy bug is from the green fly, and no observing boy of sixteen with a year's experience but would know the difference. The Professor says he is led to believe that I did not clearly identify the species of insect that causes the disease; perhaps my rough drawing of it in *Practical Floriculture* led him to think so, for I believe my genius as a draughtsman has yet to be developed. But I believe I first discovered and first published the fact of its being an insect, and my investigations which have covered a period of over a dozen years leads me to the belief, Professor Burrill to the contrary notwithstanding, that there is only one species of mite causing the disease on the Verbena; nor does that appearing on the Heliotrope, Petunia, Fuchsia, Pentstemon and a score of other families of plants show it to be different. But how it looks, or what it is, or whether it belongs to the "order Acorenia," or any other order of microscopical insects is of very little consequence to the man making his bread and butter by the sale of plants; what he wants to know is a preventative, or if the trouble is present, a remedy. I am satisfied that the insect causing black rust rarely if ever attacks a plant in luxuriant health, and that it is probably a consequence rather than a primary cause of the disease, for we have found by actual experiment repeated so as to leave no doubt in the matter. If we take for example, 100 plants each of Verbenas, Petunias, or Heliotropes which have been first potted in the usual 2-inch pot, and we take 50 of each and shift them into 3-inch pots, so as to move on their growth unchecked, that these will be entirely exempt from the insect, while those allowed to starve in the 2-inch pots will be less or more affected—this is for prevention; now the remedy. We have tried every nostrum supposed to be inimical to insect life for the black rust, and have never succeeded in checking it, except by stimulating

the plant with liquid manure; this is undoubtedly a remedy if the plant is not too far injured by the disease. We grow some hundred or more varieties of Verbenas, and this Fall we found the black rust affecting one variety only, which happened to be at the end of the house and was probably at some time allowed to be starved by drying. We tried on it the Cole's "insect exterminator," which is death to every visible insect that attacks greenhouse plants, with no apparent effect. We then stimulated the plants with liquid manure, and in 20 days every trace of the living insect was gone, and the plants now show no indication of ever having been effected.

PORTLANDIA GRANDIFLORA.

BY CHAS. E. PARNELL, GARDENER TO W. D. F. MANICE, ESQ., QUEENS, L. I.

The *Portlandia grandiflora* is a splendid stove plant belonging to the natural order Rubiaceæ. As it is a plant to be found only in a few collections, I thought that it would be interesting to some of the readers of the MONTHLY, to learn that a fine specimen of the *Portlandia* has been in blossom here for the past three weeks, and I counted fifty flowers fully expanded on it at one time. The *Portlandia* is a native of Jamaica, where it is said to grow among the rocks at the foot of the mountains. It was introduced into England in 1775. The flowers are about five inches long, one and a half inches broad, and shaped like a *Brugmansia*, pure white excepting on the inside at the throat, where it is reddish. The flowers are produced in the greatest abundance and are quite fragrant at night. In its native country it is said to grow ten to twelve feet high, but I think that it would grow to the height of twenty feet or more. It is also described as an evergreen shrub, but I find that our plant must have support and that it shows every indication of being a climbing plant after the way of the *Wistaria*. As to its being evergreen, I can only say that our plant gradually commences to cast its leaves in May, and by July there are no leaves on it. It commences to grow in September and flowers in November. Our plant occasionally ripens seed, and I think that if the flowers were carefully fertilized, seed would no doubt be produced in abundance. The *Portlandia* can be propagated from cuttings, and if the young plants are repotted as often as necessary and liberally treated, flowering plants will be produced in a few years. As our plant

is over twelve feet high, the plants will have to become large before they flower to perfection, and as it requires abundance of room for its branches, it will on this account, never come into general cultivation. The bark of the *Portlandia* is said to possess similar powers of the cinchona, but much weaker. I have never tried to raise it from seed.

EDITORIAL NOTES.

UPRIGHT GLOXINIAS.—In our last, Mr. Fyfe gave some interesting accounts of the origin of the upright Gloxinia. Some of the plants from which pollen was taken are so widely separated from gloxinia that it could hardly have had anything to do with the result, but it is worthy of note that among Gesneraceæ, plants supposed to be of distinct genera, have been certainly known to hybridize together. An interesting field is open for further experiment. But about these upright flowers we may say that some years ago the writer of this noticed on a plant of *Gesneria elongata*, some half dozen of the first flowers to open were upright and tubular, the many hundreds of others succeeding having the usual irregular form. It was the intention to save seed from these naturally produced tubular flowers, under the impression that they would introduce a race like Mr. Fyfe's gloxinia, but an accident to the plant prevented, and the same opportunity never came again.

BUTTON-HOLE BOUQUETS.—Our dry climate soon makes an end of the beauty of button-hole bouquets, so they are not quite as much in use as in the Old World. Very double Azaleas, known as Balsam Azaleas, are popular for this purpose in those countries.

THE AMARYLLIS.—It is wonderful how the taste for these bulbous plants has grown. Europeans have hybridized and crossed the species and varieties, till they have become as numerous as dahlias. The best are named and sold at high figures, some as much as ten dollars a root. In our own country some of the old kinds are popular as window plants for early spring admiration. Of *Amaryllis Johnsonii* Mr. W. K. Harris, of Philadelphia, raises and sells many hundreds annually.

A NOVELTY IN ROSES.—Buds of the new Striped Tea Rose "American Banner," were worn for the first time in New York, by the ladies waiting on the tables at the grand fair o

the Seventh Regiment, on the evening of Wednesday, Nov. 30th. This variety among flowers from its novelty and scarcity is likely to be in great demand this Winter; but as it can only be supplied in small quantities, it will cost more than its weight in gold!

GLAZING WITHOUT PUTTY.—Very few so far as we know ever think of using putty to the outside of sash in our country. The glass is bedded in soft putty, then fastened in with triangular tin sprigs, and neatly painted. It does not appear, however, to have made much headway in the Old World, a correspondent of the *Journal of Horticulture* says that this "system of glazing is not adopted so generally as I believe it deserves. One trial, I am confident, will convince anyone of its superiority, provided certain conditions are carefully attended to. Repairs will be less, the appearance is very little effected, and the house will prove more durable than when top putty is used." The heats and colds of our country makes the best putty work crack and shrink from the wood; and, unless the pitch is steep, puttied houses leak dreadfully.

TOUGHENED GLASS.—We have not heard much of this new invention which we brought to our readers' attention a year or so ago. But then it takes a long while for really good things to become generally known. The *Gardener's Magazine* says of it:

"Hardened glass is more often heard of than seen; but the time seems near at hand when we shall see nothing else, for the hardening process has undergone further improvements and amplification. We now hear of railway sleepers made of glass, and all such things as decanters, drinking glasses, and glass ornaments are promised us, not only in the hardened state, but as cheap as the common breakable glass we have been so long accustomed to. How the process will tell on horticultural glass is not as yet clearly apparent, but there is a fair prospect that in future our glass houses will be proof against such objectionable accidents as damage by hail storms and breakage by naughty boys who throw stones. It would be well if the Royal Horticultural Society, or some similarly representative body, would institute inquiries and experiments with a view to inform us what is possible in aid of horticulture by the use of hardened glass. The glassworks of M de Labastie, at Choisy-le-Roi, appear to have obtained a lead in this important manufacture."

NEW OR RARE PLANTS.

BEGONIA SCHMIDTIANA.—This new plant is in the way of the popular *Weltoniensis*, but the flowers are smaller, and of a bronzy pink color.

RUBUS PHŒNICOLASIUS.—In the winter garden at Kew there is a fine specimen of this very distinct and handsome Japanese Bramble. The fruiting stems, which are from 12 to 15 feet long, have been fastened, on account of space, to an upright stake, the compact panicles of fruit are born on short branches given off at right angles from the main stems, thus forming a complete pillar almost from the ground. In a short time, when these fruits ripen (they then become a beautiful coral-red), the effect will be very fine. The young shoots, as well as the leaf-stalks, are densely clothed with long bright red setæ, and very long-stalked glands of the same color; as the parts get older, however, their deep color gives way to a pale shade. The leaves, the under surfaces of which are almost of a snowy whiteness, are trifoliate both on the barren and fertile stems, the long-stalked terminal leaflet being much the larger. The calyces are large, with ascending sepals, and are very thickly covered with long, gland-tipped bristles. A specimen growing on one of the walls has stood a severe test, having passed through the last winter uninjured. It is, however, not nearly so vigorous as the one above-mentioned.

TORENIA FOURNERI.—I was tempted to try this new greenhouse annual from reading an account of it in the *Gardener's Magazine*, and I am pleased to say that it has proved very beautiful. I do not know whether my treatment is proper for it, but I will give a brief description of it. Premising that my plants are now eight inches high and nicely in flower, I will proceed to say that the seed was sown early in May in a frame placed upon a gentle hot-bed. The seed vegetated quickly and in three weeks from the time of sowing, the plants were large enough to prick off. Not knowing the habit of this *Torenia*, I put some singly in six-inch pots, and in other pots of the same size I put three plants. As I had a good number of plants, I filled a pan with some, putting them two inches apart, which I find is much too close. The triples have grown and are flowering fairly, but the best are the single plants. When potted singly the plants branch out at every joint and make a nicely-formed specimen without any pinching or training. When

grown in a warm frame it seems perfectly happy while growing, and equally as happy in my greenhouse when in flower, where it is now delighting my friends, who are charmed with the quaintness of the form of the flower as well as the beautiful colors. I gave a spray of one of the plants to a lady friend a week ago which had several unexpanded flowers upon it, and to-day she called again and in the course of conversation stated that the unexpanded flowers had expanded as perfectly as if the shoot had remained upon the plant. In every way I consider this *Torenia* a decided gain to those who are fond of beautiful flowers and have no hot-houses to grow them in. Very early sowing of the seed does not appear to be desirable.

SCRAPS AND QUERIES.

ACHYRANTHES EMERSONII.—N., asks if any one can give a description of *Achyranthus Emersonii*?

SALVIA SPLENDENS CŒRULEA.—A correspondent asks: "Will some of the readers of the *GARDENER'S MONTHLY* give their experience with the new blue *Salvia splendens cœrulea*. Is it of a bright blue color?"

BRUGMANSIA SUAVEOLENS.—E. C. P., asks: "Is it a rare occurrence for *Brugmansia suaveolens* to fruit? I have a plant with one fruit on it."

[We have often seen this as well as the *B. sanguinea* in flower, but never saw a fruit.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

A friend suggests that in a magazine which circulates all over the United States, and possibly in no one part more than another, "Hints for the month" are useless. But the careful reader will note that we do not attempt hints for the month, — but "Seasonable Hints." We know well enough that the person who does not know anything of gardening, but what he can read in a calendar of operations for every day in the year, will not profit much by anything that can be written. In a small country like Great Britain,—a country about the size of a man's hand—where a magazine printed in the morning in the north, may be read before night in the south, such directions may do, but when the reader and the printer are two or three thousand miles apart, and when winter is just coming in at one end it is spring-tide at the other, it is quite another thing. But "Seasonable Hints" are different. We have Winter, Spring, Summer and Autumn. It is just possible that once in a while the "hint" will be just too late in some little corner. Even here the reader can store it up. He will only have to consider that it is for him a little early to begin yet.

Now we want to say to fruit growers that a very common evil is to starve orchard trees. Further would say that this is the "season" to

think about reforming, and that it will still be the "season" till the trees begin to grow. It is often said that fruit trees do not like much manure. This is not our experience. When injury results from application of manure, we believe it is more from the destruction of the roots by the plow or spade used at the time of manuring,—for it is not unfrequently the case that after an orchard is manured the trees are "begrudged" the food; and grain, root, or vegetable crops are put in to dispute with the roots the possession of the food. When the manure is applied as a top dressing, and the roots not disturbed, we have never seen any amount of stable manure or compost applied that was in any degree anything else than a benefit to the tree. Sometimes it is said a tree grows too luxuriously, and then will not bear. Very few orchard-growers are in this lucky strait,—for it is luck to have ground as rich as this. In such cases, of course no manure will be applied,—but even here it is only a question of time,—for when in such rich ground trees do bear, the rich fruits and enormous crops are well worth waiting for. Just here the "grass question" in orchards comes in. If the ground is already comparatively poor, and you "seed it down with grass," the result is as certain to be poor looking, sickly, yellow trees as anything can be. To expect a crop of grass and a crop of trees where there is scarcely enough of food for

one crop, is absurd. No sensible man understands any one to advocate any such a theory—we might properly say such nonsense, but if one has at command any material with which he can cheaply top dress under his orchard trees at this season of the year, he will find that this plan of growing trees is one of the best ever devised. If he has not the material for top dressing, the next best thing is to keep the harrow going all summer to keep down the weeds, so that the roots have all the benefit of what little food there may be in the soil. As a general rule, however, it will be found, that where a man's time is worth anything, the labor spent in continual harrowing is worth what would be spent in procuring top dressing material.

Vegetables also require rich food. In getting ready for spring vegetables, do not fear to pile on the manure. It is the rank rich growth which gives the agreeable tenderness to them, and without an abundance of manure this cannot be done. Deep soil is also a great element of success. Though we do not favor subsoiling and underdraining for fruit trees, we regard it as very profitable in vegetable growing.

Asparagus beds may have the soil raked off them a little, if it was thrown up from the alley-way in the fall. It allows the sun to get to the roots earlier, and the crop is forwarded thereby. If the beds are poor, they may have a dressing of guano, or superphosphate, which has been found very beneficial to this crop. It has become almost a stereotyped recommendation to have "salt applied," but there is a good deal of the humbug about it. In dry, sandy soils it does a little good, and a little in whatever manure is applied is acceptable to them, but more has been made of the salt theory with asparagus than it deserves. Asparagus beds may be got ready as soon as the ground is sufficiently dry to admit of working. A deep soil is all-important; two feet, at least, and a situation should be chosen that is warm, and yet not too dry. The roots should be set about four inches under the surface, twenty inches or two feet from each other, and the rows eighteen or twenty inches apart. Large, fine Asparagus cannot be obtained by crowding the plants; strong two and three year old plants are the best; although in good, rich soil, one year old plants will often bear a good crop the year after planting. The length of time Asparagus requires to come into bearing depends much on the soil. It is useless to attempt raising it in poor ground.

This is generally supposed to be the pruning season. Orchard trees generally get too much pruning. In young trees only thin out so as not to have the main leaders crossing or interfering with one another. Or when a few shoots grow much stronger than the rest, cut these away. Insist on all the branches in young trees growing only on a perfect equality. On older trees which have been in bearing a number of years, it will often benefit to cut away a large portion of the bearing limbs. By a long series of bearings, branches will often get bark bound and stunted, preventing the free passage of the sap to the leaves. In such cases the sap seems to revenge itself by forcing out vigorous young shoots a long way down from the top of the tree. It is down to these vigorous young shoots that we would cut the bearing branches away. One must use his own judgment as to the advisability of this. If the tree bears as fine and luscious fruit as ever, of course no such severe work need be done, but if not, then now is the time.

COMMUNICATIONS.

PRICKLEY COMFREY.

BY MR. J. GRIEVES, PATTERSON, N. J.

Symphytum aspernum.—Referring to the close of my note in March last, viz: "that it is not all valuable alike," and thanking you for the compliment paid me as being a conscientious culturist, etc., I confess I like to be accurate in my observations and investigations, striving at all times only to acquire and note facts, hence the delay in referring to this topic. I again visited Europe this fall, and have taken some pains to collate the principle facts obtainable regarding this forage plant, both past and present. The name Comfrey is derived and was applied from its supposed strengthening qualities, and the property it possesses of curing wounds. There are at least ten different species of it which Messrs. Jaques & Henriq describe in their *Manual des Plantes*, and the following seven were published in 1818 in the *Hortus Suburbans Londinensis* by Robert Sweet, F. L. S.: *Symphytum officinale*, native of Britain; *S. tuberosum*, Britain; *S. Bohemicum*, Bohemia; *S. orientale*, Eastern; *S. tauricum*, Tauria; *S. cordatum*, Transylvania, and *S. aspernum*, Caucasus, the latter being the true Prickly Comfrey. This variety was first introduced into England in 1790, and was named Prickley Comfrey in dis-

inction from the native wild variety. It was next to be found described as finding a place in Kew Gardens in 1799. From the year 1808 it was sold in single plants for ornamental purposes. In 1811 it was fully brought out by the Messrs. Loddiges as a shrubbery and border plant. Its bold foliage growing in the shade to a height of five to six feet, coupled with its graceful pendant bright blue flowers, readily secured it a place in the mixed shrubs and showy flowering plants in borders where it has ever kept its place, and may yet frequently be met with about old places, especially at the sides of the private roads in England. In 1830 it was introduced as a forage plant, and found by many to answer the purpose well. The *Farmer's Journal* re-printed notices of the plant for the benefit of its subscribers, and at this time there was hardly a garden of any importance that did not possess a plant of Prickly Comfrey. The root of the other species resembled so closely the Caucasian variety that horticulturists sold it to the farmers as comfrey roots, causing disappointment and bringing it into bad repute; and the result is seen in different parts of the country even now. In France also, where it suffered from like causes, the result to-day is a variety of comfrey having a small foliage and a pale indistinct color of flower, sometimes pink, sometimes lilac or cream colored, but never the bright blue of the *aspernum*. This is an important characteristic. They are also devoid of that asperity peculiar to the true kind. The variety *aspernum* has a stem almost solid, and full of gum and mucilage, and the more solid the stem is the better it is, on account of producing a greatly increased weight of food per acre, as it branches out more freely, and plants placed three feet each way soon cover the ground with a large quantity of leaves. This plant will grow in sandy or other soils, but likes a clay loam or any good, deep soil best, as the roots will tap down six to eight feet for moisture. The yield ranges from five to ten lbs. to the plant at each cutting, according to soil, as a minimum and maximum, or from 60 to 100 tons an acre per annum; on good clay soil well enriched it has been estimated at as high as 120 tons per acre. During the last week in September, when I was there, they were cutting it for the fifth time, and the average for each cutting was estimated at about twenty tons per acre. The leaves were then from fifteen to eighteen inches long, allowing a cut of nearly fifteen inches, leaving two to three inches at the crown;

it is advisable not to cut the leaves any closer than this. The yield in well-established plants is largest if cut just before the flowers open, as the leaf is not then so large, coarse and prickly as if cut later, and almost any stock will take to it more kindly if fed in this state. As it grows well in almost any soils during drought or wet, and can be cut and fed in all weathers with the best effect on all stock, whether for milk or flesh, its advantages may be briefly summed up as follows. Great productiveness, quick growth, easy culture, stability in withstanding heat and cold, wet and drought. Its yield of fresh succulent leaves never fails to provide through the longest, driest summers a nutritious and palatable food. If, when cut down, a little rotten dung be put between the rows and lightly stirred in, and then some long manure be spread over the surface to furnish food, and protect the soil from becoming too dry, the duration of this perennial crop would be from fifteen to twenty years without renewal of the plants. There is little doubt when better known, its cultivation will be largely increased, as it can be preserved for a winter food, green, by the ensilage system; or it can be dried into hay possessing a sweet and agreeable odor if cut when in full blossom, these being profuse and very rich in honey. Cured in either way it has proved an agreeable and nutritious winter food, and deserves to rank as one of the very best of all known forage plants, if not the best. This is the verdict I find wherever it has been fairly tried, and I trust that I may have awakened some interest here in this matter, and will only add, I have none to sell, having only imported it for our own use in a small way, and have no axe to grind in the matter, my aim and end being only to speak of things as I find them, and give reasons for differences where I can find them in causes. We all know there is no effect without a cause. I may have condensed too much, and not explained enough in detail to suit all, but think I have touched the leading points.

LEPIDIUM; THE BED BUG DESTROYER.

BY S. M.

The world has, after years of experiments, not yet found the antidote or the cure of the phylloxera. Has it been more successful with that other pest, the bed bugs, that treacherous race which attacks men, women and children when

asleep? Hardly. So it may be worth while to record here the latest remedy discovered.

It is an herb called in German, Pfefferkraut or Pepperherb, in French, Passerage or Rage-soother. A person had spread the leaves of this plant in his room, and returning after a few days' absence, found them densely covered with bed bugs so that they looked like coral, and all the bugs dead excepting a few, which, however, were so weak that he had no difficulty in taking them in his fingers and executing them that way. All this we learn from a German paper. The trouble now is what plant is meant.

Looking closely into it we find that the Passerage of France is our garden cress or *Lepidium sativum*, but the Peppergrass of Germany is *Lepidium latifolium*, the broad-leaved cress. The French call it Passerage because it is said to cure the hydrophobia.

Looking still more closely into it we find that in other parts of Germany they call Peppergrass *Saturegia hortensis*, and also that in that country *Lepidium ruderales*, going by the euphonious name of Stinkcress, is also said to destroy bugs and fleas.

The readers of the GARDENER'S MONTHLY justly supposed to be lovers of science and philanthropists at the same time, are therefore requested to experiment and—with the editor's leave—to compare notes until the true remedy be found.

We beg to mention here that in addition to the *Lepidias* and *Saturegia* named above, there are further the following *Lepidias*: *L. campestre*, *draba*, and *iberis*. Beside those that are unknown to the writer. Give the *Lepidias* a trial.

SHORT NOTES.

BY A. H., MEADVILLE, PA.

It is a pity that Dr. Grant should ever have adopted for the name of his grapes one so much like *Isabella* as *Israella*. The first for sundry reasons has been abandoned, so far as I know, by cultivators in this region. The latter though not much of a grape, ripens its fruit better, yet when it is referred to the compositor is almost sure to transpose it into *Isabella*.

When I suggested kerosene as a remedy for the Colorado beetle, I should have added that it is most readily applied when the beetles first appear in the spring. If they are kept in check three or four weeks, the crop of potatoes is safe, though the bugs multiply largely subsequently.

EDITORIAL NOTES.

GREEN CORN.—Though it will not mature in the north of Europe sufficiently early to make it a farm crop, it is coming into general use as a garden vegetable, to eat in a green state as with us.

SWEET POTATOES.—These, from America, are becoming popular in English markets. The *London Times*, of Oct. 15th notices the arrival of a consignment from Delaware.

THE TURKISH HAZEL-NUT TRADE.—A considerable trade has sprung up of late years between the Trebizond district and Great Britain in the article of Hazel-nuts, which are a very important source of wealth on the coast extending from a little south of Batoum to Kerassund. Upwards of £20,000 worth per annum are shipped to England, the chief supplies of the best nuts coming from Tireboli, between Kerassund and Trebizond. Walnut trees, too, are largely grown in the forests of Lazistan, partly for the sake of the nuts, but principally for the walnut tree knobs, which are much in request in France. —*The Times*.

THE WICKERSHEIMER PROCESS TO PRESERVE ANIMALS AND VEGETABLES.—The Imperial German official paper, the *Reichs Anzeiger*, has the following:—"Mr. Wickersheimer, Preparator at the anatomical and zoological collection of the University of Berlin, has invented a process of preserving corpses, plants and the single parts thereof. He had taken out a patent for the same throughout the German empire, but has given up his rights acquired thereby, thus allowing any person to use his process. It is described in the certificate of patent thus: I prepare the following liquid, in 3000 g. of boiling water, 100 g. of alum, 25 g. of table salt, 12 g. of salt-petre, 60 g. of potash and 10 g. of arsenic acid are dissolved. Let cool and filter. To 10 litres of this neutral, colorless and odorless liquid, add 4 litres of glycerine and one litre of methyl alcohol. Soaking and impregnating are the general ways of application. If preparations, animals, etc., are destined to be kept in a dry state, soak them, according to size, from 6 to 12 days, after that dry them. The ligaments and muscles of bodies, crabs, beetles, etc., will remain soft and flexible, so that their natural motions and functions can be shown on them. If cut, the muscles will work

as they do on fresh corpses. No odor of decay. Worms and insects remain flexible without having their intestines taken out. Small animals and plants, whenever the natural color is desirable to be preserved, must not be dried but kept in the liquid."

GOOD PEACHES.—The number of peaches which the raisers believe to be worthy of dissemination, is now so great that we want some standard of comparison, below which it is hardly worth while to go, say for instance in the case of early peaches of large size, if one who has something he thinks worthy of dissemination, before sending it to the editor for his opinion, let him first compare it with a well-ripened Crawford's early. If it is larger and earlier, or as large and sweeter, or has some one feature that may be superior to that, then let it come on.

RASPBERRIES IN CANADA.—Canada is the paradise of raspberry culture. They talk there about Antwerps and other choice varieties as amongst the most profitable to cultivate. The thickets and wild places abound with delicious fruit, and "going a raspberrying" is the favorite summer pastime with Canadian lads and lasses. The writer of this has delicious recollections of "hand fulls" that have served for dinner in botanical excursions through Canadian Tamarac swamps; and altogether he is sure that if there is one thing more than another for which a fruit lover might be pardoned, it would be the wish to be around in Canada during raspberry time.

WHITE-WASHING TREES.—The *Country Gentleman* takes exception to our advice to white-wash trees, because "white" looks bad. Our contemporary does not seem to know that "white" is merely the technical term for "lime" wash, and it will be surprised to learn that in Pennsylvania they have yellow whitewash, blue whitewash, and brown whitewash, and in the legislatures they have whitewash for covering up bad character. As to the color of the white-wash we recommended we have no objection, so that lime be one of the ingredients of the wash.

HOW TO STIMULATE THE IMPROVEMENT OF FRUITS.—A correspondent of the *Canadian Horticulturist* recommends that fruit patents be granted for a term of years at a trifling cost to the patentee. That a patent fruit nursery be established, and all patented fruit to be sold

through this nursery; that no patented fruits be allowed to be sold except they first pass through this patent nursery.

SCRAPS AND QUERIES.

KIEFFER'S HYBRID PEAR.—X says:—"I see the GARDENER'S MONTHLY quoted as authority that this is an excellent fruit, and others also quoted that the fruit is worthless. How is this; and what is the public to think?"

[This is a very simple question. If the public is to think at all, it must do as other judges do. All judges do not look at things in the same light. The story of the Dutch judge may give our correspondent some clue as to how to think on the matter. Half a dozen witnesses were produced, who positively swore they saw the man steal, but the defence produced a dozen who did not see the man steal, and the judge considered the majority favored the defendant, who was accordingly acquitted. All we can say is that we have eaten fruit of the Kieffer Pear which was equal in luscious richness to any pear we ever ate. The whole of the Judges at the Centennial who had some fruit before them, also seem by their report to have had a favorable experience. Now if there are some gentlemen who have had fruit of it that was not commendable, it is no more than general experience with other fruit; for everybody has had Vicars, and Flemish Beauties, and other fruits that were not worth eating. If these poor samples happen to be sent for opinions, of course no editor can do anything else but speak of it accordingly. We expect some time to have a poor specimen of the Kieffer as well as of any other kind—but that will not alter our opinion about the excellent fruit we have tasted.—Ed. G. M.]

WHITE GRAPES—"Critic," Boston, Mass., writes: "I see you talk of 'white' grapes, now I have never seen a white grape, but I have seen green ones. Would it not be as well to call things by their proper names?"

[Of course our critic is right when he proposes to call things by their proper names. But "white" is the absence of color, and a grape which continues always of its normal green color, and in which there is therefore in a certain sense an absence of color, such as we usually look for in a fruit, is white in a metaphorical and therefore correct sense. A child is told it should not eat

"green" fruit; so to keep the commandments he cuts off the green skin, and eats the white flesh, but would our "critic" not say it was still "green" fruit. By a metaphor, green in this sense has come to mean unripe, no matter what the color of the "green" fruit may be. We fear our correspondent must look for sympathy among those who cannot say, cactuses and roses, when talking every-day English, but must have Cacti, Rosæ, Gladioli, etc.—ED. G. M.]

JAPAN PERSIMMON.—With a very pretty specimen of fruit, Baird & Tuttle, write: "For your inspection we mail you this day a sample fruit of the Japan Persimmon raised in California. We retain a specimen of another variety, unfit for shipment, that is fully as fine as the one sent. We are very much interested in this fruit and hope to most thoroughly test the hardness of the imported trees this coming winter. Trees planted last spring in nursery row have done well but were very late in making a new growth and the early frosts caused leaves to drop. Root grafts have done poorly; we budded the Japan on the native persimmon with perfect success. We think this most delicious fruit is worthy of very extended experiment and trial before condemning it as tender or unfit for the north."

QUEEN OF THE MARKET RASPBERRY.—E. P. Roe, writes: "I would be glad to learn the origin of the Queen of the Market Raspberry. I have a row of it that I know to be genuine in my test and specimen bed. Side by side with it I have Cuthbert plants obtained from Thos. Cuthbert's garden, its original home. After a Summer and Fall's experience I can see no difference between these two varieties either in foliage, the appearance of the cones, or in the fruit. I cannot help thinking that they are identical, but would be glad to be better informed by any of your correspondents. On the other side of my Cuthbert

row I also have the Conover Raspberry. The plants of the latter were very poor and they have made but a feeble growth, still they closely resemble the Cuthbert. It is my plan to test the small fruits side by side and let them argue their own cases with no other help save that obtained from nature.

VARIOUS FRUIT QUERIES.—F. L. Flushing, Mich., writes:—"1. Is there a known remedy for the destruction of the insect, the larva of which you will find in the enclosed raspberry cane, and what do you call them? 2. How can I destroy the ground mole? It is the only real pest I have in my strawberries. 3. Are the Cinderella and Continental Strawberries very much esteemed in Philadelphia markets as profitable market berries? 4. Is the Reliance Raspberry as good, prolific and profitable as the Queen of the Market, or Cuthbert Raspberry? Is the Gregg the best Blackcap Raspberry? The strawberries and Reliance Raspberries are recommended highly by Messrs. Gibson & Bennet, of Woodbury, N. J.; they claim the origination, and that the highest or first premiums have been awarded for them."

[1. The injury to the raspberry canes is not known here. Send some specimens to Prof. Cook, Agricultural College, Lansing, Mich. 2. Lumps of tow dipped in gas tar, and placed in the runs will drive the moles away. 3. The strawberries mentioned have not been long enough known to appear in the Philadelphia market in any quantity. Those who have seen the plants in bearing, believe them to be good kinds. The Reliance is a raspberry much in the way of the Philadelphia, and in some respects is regarded as somewhat of an improvement. The Gregg is believed to be the best blackcap yet raised. 4. Gibson & Bennett stand among the most reliable men in the nursery trade.—ED. G. M.]

FORESTRY.

COMMUNICATIONS.

NOTES ON TREES IN THE ARBORETUM OF HUMPHREY MARSHALL.

BY PROF. C. S. SARGENT.

During a recent visit, in company with Mr. W. M. Canby, to the old garden of Humphrey

Marshall, author of the *Arbustum Americanum*, we took occasion to measure some of his most remarkable trees.

Humphrey Marshall built his house at what is now Marshallton, West Chester Co., Pa., in 1764, and it is probable that these trees were planted during the years immediately subse-

quent to that date or not long after. The measurements were taken three and a half feet from the ground.

Quercus heterophylla. Raised from an acorn from Bartram's original plant. A very tall and spreading tree, girted 7 feet 4 inch.

Quercus Phellos. 10 feet 7 inches.

Gymnocladus Canadensis. 8 feet 10 inches.

Liquidambar styraciflua. 9 feet 5 inches.

Larix Europæ. 5 feet 11 inches.

Magnolia acuminata. A magnificent symmetrical specimen, with bark hardly to be distinguished from that of White Oak, 11 feet 9 inches.

By the road-side in the Southern part of West Chester County, we measured a venerable chestnut tree, which showed a trunk twenty-three feet and seven inches in circumference at four feet from the ground.

EDITORIAL NOTES.

FORESTS OF AUSTRALIA.—Baron Von Mueller in a treatise on the maintenance and creation of forests, just issued, says that the prevailing timber trees of Australia are the Blue Gums, or Eucalyptus, of which 150 species are now known. An Evergreen Beech, *Fagus Cunninghamii*, prevails on some tracts in the Cape Otway district, and in the Baw Baw Mountains. Dr. M., looks to the forests of the older settled portions of the world, and especially to the forests of America, for the necessary variety of species that is to make Australian forest culture ultimately of great value.

STATISTICS OF ARBORICULTURE.—Prof. C. S. Sargent has been retained to prepare the statistics of arboriculture for the next census. Agriculture, fruit growing as a part of agriculture, and arboriculture having been provided for, what is to be done for horticulture and the nursery trade? It is to be hoped that we are not to have the Centennial experience over again, when even the important fruit-growing interests of the country were not thought of till after the opening of the exhibition, and pure horticulture scarcely at all.

THE PROFITS OF FOREST PLANTING.—In Europe, forest planting has been on the whole profitable, but chiefly when the forest has been under the special care of an experienced forester. In this way they are made to pay from the very start, as various kinds of undergrowth is planted with the trees which are

to make the permanent timber. Thus, hoop-poles, hop-poles, various barks or dye stuffs, posts, charcoal, and all sorts of things come in regularly, so that men are continually employed on something or another in the forest all the year. It is found by this sort of care, that the whole cost of the forest comes back in about ten years, with good interest, and what is made afterwards is clear profit. The mere planting of trees alone, for future timber, will not yet pay in Europe. In our own country it is pretty much the same. Notwithstanding the enormous depletion of the forests by fire and the wants of man, there are yet millions of acres of cheap timber land, and every new railroad opens up new forests to the markets. Still there are many places where timber culture would be a great success if it could be judiciously followed as a business. The work on which Prof. Sargent is engaged in connection with the next census, will no doubt show where these opportunities are, so that those who do not wish to "carry coals to New Castle," may profit.

VARIETIES OF TIMBER.—Talking with an eminent ship builder, recently, we found him firm in the faith that there were many varieties of the same species of tree, though the differences could not be detected by the most expert botanist. He spoke particularly of White Oak and the Tulip tree, the varieties of which he could always detect by the timber, though he could see no difference in foliage, flower, or fruit. There was not merely a difference in appearance, but in some cases one form would yield superior timber, and the other comparatively worthless. Lumber men speak of the same experience with the Scotch Pine, in Scotland.

FERTILITY OF FOREST TREES.—In our country, forest trees seed with great irregularity. There may be a crop, or there may not be of some seeds, while those which make some show of regularity, as hickories, walnuts, and chestnuts vary much in quantity. It is not the case in Great Britain; but this season the foresters complain that there is nothing, and are mystified as to the cause of the scarcity.

A LARGE OAK.—What is believed to be the largest oak in England, is at Cawthorpe, in Yorkshire, and is thirty-eight feet four and a half inches round, five feet from the ground. It would be interesting to know how large we can find an American oak. We have seen very large ones near Cincinnati.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CURIOUS CAROLINA FUNCI.

BY H. W. RAVENEL, AIKEN, S. C.

In your December number is a notice of two fungi, by Mrs. D. W., of Summerville, S. C., which, from her description, it is not difficult to identify. The first is undoubtedly *Clathres columnatus*, not at all uncommon in cultivated lands in Winter. It grows just under the ground, and when it has attained its full growth in that stage, is about the size and shape of a hen's egg, and of a dirty white color. On cutting it open the ball discloses a jelly-like bag, in which is seen the scarlet fungus, very much compressed. As the plant matures, which would be in a day or two more, the sac or volva is ruptured, and the scarlet fungus expands or grows upwards to about two to three inches high, the sac remains in the ground. It is then a three-columned arch—the columns of bright scarlet, shading off to white where it remains in the sac. On the under side of this arch is an olive colored mucus, from which proceeds the fetid stench. Flesh flies devour this fetid mucus greedily. Another nearly related fungus is *Phallus*, which perhaps is even more decided in its odoriferous qualities than its cousin *Clathres*. The genus *Phallus*, comprises several species, and grows up also from a jelly sac or volva, in a single straight column from six to eight inches high, some red, others white or salmon color, and capped by an olive-colored mucus. This whole family of *Clathres* and *Phallus* is known in the vernacular as "Devil's breath," which name feebly expresses their peculiar gifts. The other thing mentioned by Mrs. D. W. as growing in clusters, with caps like "bells pendant," is probably *Coprinus cernuus*. We have several species of *Coprinus*, but this is the largest and prettiest. I have seen them eight to ten inches high, with their fawn colored, bell-shaped caps four to five inches long. Like all others of this genus, it begins soon to deliquesce after sun rise, and in a few hours there is nothing left of the caps but a few blackened shreds remaining attached to the top of the stem.

THE PEAR-LEAF BLISTER.

BY PROF. T. J. BURRILL, CHAMPAIGN, ILLS.

The following excellent exposition of this disease was recently made before the Illinois State Horticultural Society.

A wide-spread disease of pear-leaves in this country and in Europe is caused by a mite to which Schenten, a German naturalist, gave the name *Typhlodromus pyri*. This was twenty-one years ago. Ignorant of this information, the writer during the last season rediscovered the cause of the disease, and, it is believed, first announced its occurrence in our country. There is scarcely a question as to the identity of the disease and its cause on the opposite sides of the Atlantic, and granting this identity, we may conclude that it is another one of the horticultural scourges that have been imported from across the water, for which we have returned the phylloxera and possibly shall send over the Colorado potato-beetle. Nothing of the life-history of this pear-leaf mite has heretofore been published, except the discussions which have arisen as to whether the form usually found is a young or mature animal. It has but four feet, while most mites have eight. But the young larvæ of others have six, as far as made out. Is this an exception? Schenten called this a larva, and Doctor Packard, in the Guide to the Study of Insects, adopts the idea. According to the former, the mature form has eight legs and widely different mouth-parts, but the only proof of the genetic connection of the two is that they were found associated. As this eight-legged form certainly belongs to a group whose members are mostly parasitic in other insects it is probable that if any relation exists between the two kinds it is of this nature. But having found the mite in its autumn and winter condition, I am able to add an item to the controversy opposed to the change of form indicated. And this last discovery, carrying with it the possible basis for a remedy, is my excuse for introducing this account.

When young leaves appear in the spring or during the summer, reddish spots an eighth of an inch or more are seen scattered more or less numerous over their surface, especially con-

spicuous on the upper side. At a later time these spots turn brown by the death of the parts, after which they are more easily discovered beneath. With a good magnifier a minute hole can be distinguished near the centre of each spot through the lower side epidermis, and the spots are somewhat thickened. This is about all that can be ascertained with a hand magnifier, for if we dissect the spots nothing can ordinarily be found but the spongy cell-tissues brown with disease or death. But if one of these spots is carefully opened and magnified fifty to one hundred times numerous peach-colored slowly-moving things are discovered. These are the depredators caught, if not in the act, with the evidence of their misdoings in the same field of view. The size is much less than that of any true insect known; the length from extremity to extremity being but .0055 of an inch and the width not more than .0017. It would take nearly two hundred of them placed end to end to measure an inch, and six hundred could march elbow to elbow within that space. We cannot wonder, therefore, that more has not been known about them or that they were so long entirely unknown. They make up, however, what they lack in square measure by the multiplication table. Dozens, perhaps scores, occur in a single spot, and dozens of spots may be found on a single leaf. The two pairs of legs are directed forward and the little thing clumsily drags its body along not unlike the larvæ of the May beetles, usually known as white grub-worms. Its progress is excessively slow. The perilous trip down the foot-stalk of the leaf to the buds in autumn must be an immense undertaking. Some of them do not make it, for, whether from simple procrastination or a dread of attempting the great journey to an unknown country, numbers remain and fall with the leaf to the ground. Possibly this is the way that slow dissemination takes place from tree to tree in an orchard, yet it hardly seems possible that, though carried by the winds to the very foot of a tree, they could climb the trunk to the limbs. The chance would be better in the nursery, where the leaves are very near the ground.

The fact referred to above as new, not having heretofore been publicly announced, is that these minute creatures do creep from their galls in the leaves in autumn and pass the winter within the leaf-scales of the buds. Hundreds of them may be found there now of the size and form previously mentioned, and by keeping

them warm for some time they may be seen crawling as lively as nature ever permits them to move. Neither eggs, except perhaps within the body of the females, nor larvæ have been observed, but they almost surely exist within the leaf-galls. Probably my own investigations have been made too late in the season.

My story is longer than it should be, but there must be a suggestion added as to the treatment or remedy. Is the disease preventable or curable? Human beings sometimes, more is the pity, have a skin disease popularly known as the itch. Is it preventable or curable? It, too, is caused by a mite, not distinctly related to the little thing of which we speak. No one believes this human parasite originates spontaneously under the skin of the hand; so we may rest assured that when pear trees are thus affected—catch the itch—they themselves are not the incubators of the mite-species which causes it. The mite comes from abroad, is disseminated in scions and very gradually spreads from tree to tree located near each other. Its marks in spring and summer are conspicuous enough. Is not the road to extermination evident enough? Let war be made by cutting back the one-year-old wood of all effected trees in winter and burning the removed portions. Then in spring-time remove every young shoot which shows the need of it, and likewise destroy it. Let this be kept up during the summer and we may be sure that the next season will show us healthy trees in this respect. Most care should be taken with nurseries, and especially in the selection of buds and scions for propagation. Seedling stocks may be contaminated; in one case they were known to be. If such have the buds entirely cut away and burned, and for further safety the roots dipped into strong potash solution, no mites can escape. The pruning advised may sometimes be severe, but no large limbs need be removed, only last year's growth, bearing the buds, and we may proceed with the understanding that it is to be done once, and once only if the work is thorough and general throughout the orchard or nursery, provided that some one else's orchard or nursery does not closely adjoin that operated upon and new importation of the mite is not made.

Believing that no good reason exists for the generic separation of this little creature from its kindred previously described, Andrew Murray classes it among the species of the genus *Phytotus*. This is almost certainly correct, and we write to close with—*Phytotus pyri*.

CLIMATIC DIFFERENCES.

BY WILLIAM NISBET, PROVIDENCE, R. I.

In the GARDENER'S MONTHLY for November I read with much pleasure a very interesting account of the "Remarkable Difference of the Climate of Places Situated Under the Same Latitude," by F. W. Poppey. As a Scotch gardener, however, who has had good opportunity to know something of the climate and productions of his native country, having lived in the lowlands and highlands thereof, as well as in the "Hebrid Isle, placed far amid the melancholy main." I hope I may be pardoned for taking some exception to the assertion that no fruit tree thrives in that country. Had Mr. Poppey said that there are portions of it where no fruit tree thrives, he would have been correct. For, truly there are localities

"Shaggy with heath; yet lonely, bare,
Nor tree, nor bush, nor brake is there."

Yet in many of the Scottish Islands, and on the mainland in general, and especially towards the east coast, certain kinds of fruit trees thrive very well. Not to speak of some other places, and the orchards and gardens of the wealthy. Any one who has seen the Clydesdale Orchards, and those of the Carse of Gowrie, knows that it is so. I am not at all alluding to "wall trees," for trained against garden walls, all sorts of apples, pears, plums, cherries, peaches, apricots and figs do well, and in some instances the Black Hamburg grape. I have helped to pick many hundred bushels of apples for the English market, where they sold just as readily as those from the Channel Islands, and parts of England. I happen to remember one Red Cathead apple tree, from which, in one season, we took sixteen bushels. Excellent pears and plums are also produced; indeed, I have eaten some of the same varieties of fruit on the continent of Europe, in England, Ireland and Scotland, and it seemed to me those grown in Scotland were just as good as any of them. In Scotland I have seen healthy apple, and especially pear trees, bearing fruit which had been planted many hundred years ago by those good gardeners, the monks of old. In the south-west of Scotland, about latitude 55°, I have seen very old and large trees of Spanish Chestnut, Walnut, Juglans regia, and Spanish Filbert, all producing fine crops of good fruit. One of these chestnut trees I know was at least twelve feet in circumference about two feet from the ground. I call the filberts trees, they really

were trees, large enough for a man to climb up amongst their branches.

Many good varieties of apples and pears have originated in Scotland, excellent for that, and some of them, too, for other countries. I happen to think of the Leasington, Oslin, Hawthornden, Thorle and Tower of Glamis amongst apples; and Auchan, Drummond, Golden Knapp and Crawford amongst pears. There is one tree—but, I had almost forgotten that in these days of evolution it has taken a backward course, revolved to a bush! contrary to the authority of all good gardeners and garden authors of y^e olden time, such as good old Abercrombie and others, in whose times it was a tree! I mean a gooseberry tree! Well this tree, or bush if it must be called in order to keep up with the times, thrives throughout Scotland as well, if not better, than in any other land on the globe. It may be called the grape of the country, equal to, and surpassing in flavor many grapes; excellent for tarts, jelly, jams, and even wine. Nature, ever kind and compensating, although she has denied the vine to Northern lands, has given them the gooseberry, the currant, raspberry and strawberry—bounteous gifts, no mean equivalents.

Perhaps in no country of equal dimensions is there a greater diversity of soil, scenery and climate than exists in Scotland. The climate is very much affected by the position and proximity of mountains, the islands off the coast, the ocean and the gulf stream. The winter climate of the west coast, and the adjoining islands of the Hebrides, the shores of which are laved by the warm waters of the gulf stream, is very mild and very moist; in some places ice and snow, to any extent, are rare. In many places in these regions, even north of latitude 58°, the same parallel of latitude as Northern Labrador, Fuschias, Myrtles, (Myrtus communis,) Hydrangeas and sweet scented Verbenas, (Aloysia citrodora,) and many other tender things stand the winter without any protection, and thrive well. I have seen the Myrtle in flower at Christmas, and the Arbutus, (Arbutus Unedo,) loaded with its exquisitely beautiful and tempting berries at the same time.

I have good remembrance of one Hydrangea, then some thirty years old, which had five hundred and twenty-five flowers on it at one time. This Hydrangea was protected in winter by a cordon of Silver spruce boughs stuck in the ground.

The climate of the Eastern coast is in general

much more severe; there the influence of the mysterious, beneficent gulf stream is much less felt, while nothing but the German ocean intervenes betwixt the northern part of the continent of Europe, from which the cold blasts issue forth and sweep with biting severity. In most parts of this quarter of the country the above mentioned tender things have to be well protected to thrive well at all. There are in Scotland moorlands of mist and cloud, "glens where the snow-flake reposes," mountains "around whose summits the elements war," where the torrent rushes and the "cataract foams," hyperborean regions, too, where stern winter sways his cold sceptre with rigor. Although the climate may well be pronounced, in a general way damp, cloudy and wet, yet there are some localities which may be said to be dry, as several places on the East coast, and on the shores of the Solway frith, rendered so by the mountains of the adjoining Isle of Man arresting the rain clouds from the south-west.

In connection with the subject of climate, I may say, that in the spring of 1838, I went from the south-west of Scotland to London. The previous winter had been very severe—an ox was roasted on the Serpentine river at London that winter—I was much surprised to see amongst a number of other things, shrubs such as Laurustinus and Arbutus very much injured and almost destroyed by the cold, while the same varieties I had left in Scotland, fully four degrees farther north, were uninjured.

I hope you will forgive me for the length of this communication, and for having digressed so far from the original topic, and accept best wishes for yourself and the success of your excellent MONTHLY, to which I have been a subscriber from the beginning, and to which I owe much in the way of interesting information and instruction.

PERIODICAL DISAPPEARANCE OF SPECIES.

BY MISS MARY C. MURTFELDT, KIRKWOOD, MO.

There is a tradition among the inhabitants of this locality, that two Sabbatias, which are the only species I have found here, appear but once in seven years; and, although I cannot quite credit the statement, my own limited observation goes to corroborate it. In 1870, the first Summer after we moved to Kirkwood, I very well remember my pleasure in finding these pretty plants in considerable numbers. But

from that year until 1877 I was not able to collect a single specimen. During the Summer of the last named year, however, they occurred in unexampled profusion throughout this section of the country, blossoming by the roadsides, in uncultivated fields, on the border of forests and the banks of streams,—everywhere. The flowers are so showy and beautiful that they attracted very general attention, and specimens were frequently brought to me by old settlers with the remark, "Here is a flower that blooms only once in seven years."

I resolved to test the truth of the assertion, if possible, so my sisters and myself carefully marked a number of situations where the plants were growing in abundance. We also transplanted several to our garden beds—a process which they bore remarkably well—and we gathered and sowed quantities of the seed.

The succeeding Summer, however, we looked in vain for the plants—they were not to be found in their native haunts, nor did they re-appear either from root or seed, in our garden. Neither have we been more successful in finding them during the Summer just passed, and I am beginning to credit the popular notion concerning them.

I was at first inclined to ascribe the idea of the seven-years-development to a vague association with the scientific name and a misconception of its derivation. None of the people who mentioned the idiosyncrasy of the Sabbatias to me, were botanists, nor had they the least idea of the technical name. But would it not prove a singular and interesting coincidence between name and habit, should it be found that these Sabbatias do bloom but once in seven years?

Of course, I remember that the genus was named for the Italian botanist, Sabbati, but that does not make the name of the term less suggestive of Sabbath. I should like to know what your experience has been with the plant under consideration.

[The periodic disappearance of some plants is believed in by most botanists. It may be that the plants are in existence, but that the circumstances which induce flowering do not occur. The writer of this once had a number of plants of Senecio Jacobæa which remained perfectly healthy for years without blooming, though there should be flowers every year. Biennial plants only die from the exhaustion by flowering, and annual or biennial gentians may remain as small perennial plants for years unnoticed if they

did not flower. Again, seeds require peculiar conditions to germinate, and although there are some that will germinate at any temperature, there are others which if they are not advanced a certain stage towards development when a certain stage of moisture or of temperature occurs at a certain season of the year, will remain until the chance comes the next, or future years. There are some nursery seeds that will not germinate after the Spring temperature of the soil goes beyond 45° or 50°.—Ed. G. M.]

DISTRIBUTION OF PLANTS.

BY REV. L. J. TEMPLIN, HUTCHINSON, KAN.

The world is full of wonders to every one who has not made up his mind to be astonished at nothing he may see. To the thoughtful mind there is much in nature to inspire wonder and admiration. The wise adaptation of means to ends, and the beautiful harmony that exists throughout all the realm of organic nature lead the mind free from bias to the inference that some wise intelligent power orders and governs all these relations and harmonies. Perhaps nowhere in nature is there a more manifest exhibition of wisdom in the adaptation of means to the accomplishment of a worthy purpose than is seen in the various methods employed in nature for the dissemination of plants by the distribution of seeds.

In looking at this subject with an intelligent eye the mind cannot shut out the conviction that some intelligent designer must have been employed in planning this scheme that has so much of both excellence and variety to recommend it to the judgment. To say that all this is to be attributed to chance is to endow chance with all the attributes of a Deity, which is the very reverse of the idea intended to be conveyed by the term. In the sense intended it is perfectly absurd to attribute this or any other work to chance, for in that sense chance is nothing, and consequently can do nothing. So we regard it as the result of evolution; but I cannot see that this relieves the difficulty, even if the truth of the theory of evolution be admitted. Evolution is simply the working out of certain results under the operation of law. But what is this law? It is not correct to say that it is force, though I think many make this mistake. Law is only the established order or manner in which force operates, so that if we admit the intervention of law and a thousand or ten thousand secondary causes, still this law must have origin-

ated with a Law-giver, and behind all these secondary causes the mind must rest at last on the great First Cause, the Author of all other causes. But I did not start out to write a moral or philosophical essay, but to call attention to some of nature's methods of distributing the vegetable kingdom over the world. In producing these results we find three classes of agents at work: the waters, the winds and animals, besides certain arrangements within the plants themselves for the accomplishment of this purpose. And we find the seeds themselves adapted to these different means of transportation. The light character of many seeds well adapts them to floating from place to place, while their impervious coverings protect them while being carried long distances by the currents of the ocean or of rivers, and then when they lodge on some island or other shore they readily spring up and grow. What, for instance, can be better adapted to floating from island to island than the tough, corky covering of the cocoanut. The seeds of grasses and other plants are washed down from the higher grounds by streams, and they are thus widely distributed.

The seeds of many plants, as of the dandelion, thistle and a long list of similar plants are furnished with a tuft of downy or silky pappus, that will enable them, when ripe, to float away on the breeze and thus be scattered far and wide. The seeds of some species of poplar, cottonwood, are attached to a bunch of fine cotton that serves as a buoy to bear them up through the air by means of which they are frequently carried many miles from the parent tree. Seeds are often disseminated through animal agency. Animals frequently carry seeds and nuts away and bury them for winter food, where they are forgotten and left to grow. Many seeds of fruits are swallowed by birds and carried to distant places and voided uninjured, and there spring up and grow. Thus the seeds of cherries, grapes, gooseberries, blackberries and many others of like nature are sown broadcast over a large extent of country. During an invasion of the Rocky Mountain Locust into Iowa a few years ago, they left the ground where they fed thickly strewn with the seeds of some species of grass, new to that locality, which they had brought from the far north-west. Many seeds are provided with hooked barbs by which they cling to clothing and the coats of animals, and are carried about from place to

Many people are familiar with the cockle bur, the Spanish needle, the "beggar lice," and burdock, and how tenaciously they adhere to any surface where they can get a hold. To this we may add the sand bur, *Cenchrus tribuloides*, with its sharp spines, one of the most execrable weeds I have made the acquaintance of. Some seeds, as of the maple, ash, elm, etc., are furnished with a wing that causes them to sail off some distance in falling. The locust, Judas tree, or red bud, and others have a light pad that will often sail off to a considerable distance, thus scattering their seeds. Some kinds of bean have the pod so arranged that when it bursts it suddenly twists into a coil, throwing the seeds a considerable distance; this habit in the *Impatiens* or touch-me-not, geranium, etc., is well known. The squirting cucumber, *Momordica elaterium*, when ripe, bursts with a considerable report, throwing its seeds many feet distant. A few plants, when their seeds are ripe, travel over the country and sow them themselves. A good example of this is the "tumble weed," about the true name of which the doctors disagree. Two species grow here, the larger, which is the tumble weed here, grows in a thick cluster of very slender branches, and these so numerous that the bunch, which is often as big as a hog's head, can scarcely be seen through. When ripe they are torn from the roots by the wind, and then they roll and tumble, often at the speed of a race horse, till they meet an obstruction that they cannot surmount, and there they rest till the wind changes, and then they start again. and this is kept up till they are worn out and broken to pieces. Their seeds are thus scattered over all the country. A plant that grows on the deserts of Africa, the Rose of Jericho, *Anastatica hierochuntica*, when ripe, curls into a ball, becomes detached from the soil and rolls about before the wind till a light shower of rain falls, when it opens its seed pods, drops its seeds which germinate in about eighteen hours. The wisdom of the arrangement here is seen when we remember that if it remained where it grew the whole plant would probably be covered by the drifting sands, and if its seeds did not germinate quickly while the transient moisture lasted they never could grow at all. Thus does nature care for her children.

NOTE ON CALADIUM ESCULENTUM.

BY H. W. RAVENEL, AIKEN, SOUTH CAROLINA.

In reference to another article in the Decem-

ber number, on *Caladium esculentum* growing wild in Florida, I would remark that this plant under the name of Tanyah, is extensively cultivated in this State, and especially along the seaboard. I have seen great quantities of it growing, and planted it myself, for many years as a garden vegetable. I have never known it to mature seed; and, without knowing the fact, I doubt if it seeds in Florida. It is always propagated by taking off the small tubers which grow attached to the larger, and I think it most probable that it strayed off by means of these small tubers, which are always taken off when the vegetable is prepared for boiling. Or some person may have purposely carried the tubers and planted them out where they were found.

EDITORIAL NOTES.

BRANCH GROWTH FROM CONIFEROUS FLOWERS.—It is not at all uncommon to find a larch cone with a branch growing from its apex. We were not aware that similar growths had been noticed from the small catkins of coniferous trees; but Mr. James Gordon says in the *Journal of Forestry*, that "one often meets with it in the male flowers of Abies," though he "never expects to see them in Pinus."

PTELEA TRIFOLIATA.—The *Gardeners' Chronicle* tells us that Monsieur Chas. Baltet has "discovered" that the seed of our "Hop-tree" is a good substitute for hops.

BOTANICAL ORTHOGRAPHY.—American zoologists have abandoned the practice of using capitals for specific terms that may be derived from proper names. Botanists are urged to follow them, and we notice in some recent numbers of the *American Naturalist*, that the editors are giving plants names in that way. Now, we should write *Amaryllis Treatæ*, or *Primula Parryi*, and translate them Mrs. Treat's *Amaryllis*, and Dr. Parry's *Primrose*,—but *Amaryllis treatæ*, and *Primula parryi*—treat's *amaryllis* and parry's *primrose*, have a small look,—and there are other reasons why the good old rule should be sustained.

SCRAPS AND QUERIES.

MORPHOLOGY OF LEAVES.—A. G., Cambridge, Mass., writes: "What American morphologists (see p. 379) would say that all struc-

ture was of leaf origin?" What have you in view?"

[It is of course well known to the students of Dr. Gray's works, that he follows the lead of Gaudichaud in supposing that plant cells first unite to form a primordial organism which Dr. Gray calls a Phytomer, or internodal stem, and that leaf structure follows,—but Herbert Spencer supposes that the first effort of the vegetable cell is to organize as leaf-blade, and that all structure results from this effort. It is our belief that the greater portion of morphologists who have studied the two hypotheses prefer the latter, though the fact that so eminent a botanist as Dr. Gray prefers the former, will be naturally regarded as weighing heavily in its favor.—ED. G. M.]

FRUITING OF WISTARIA.—Miss E. P. K., Hartford, Conn., writes: "We are told that you have spoken in your paper of the fact that it is rare for the Wistaria vine to produce seeds. Our vine, which is about twenty years old, has been for several years thickly covered with pods, of which we send you a sample."

[We have not simply said it is rare for the Wistaria to produce seeds, but that it is rare for

it to produce seeds till its vegetative condition, or its growth-force is in a measure exhausted. In illustration of this we have pointed out that fruit is rarely seen on vines running over trellises or trees, until by age, or nothing further for the branchlets to twine on, the growth force is exhausted,—while Wistarias trained to be self-supporting, that is dwarf trees, with nothing whatever to twine a single branchlet on, are generally productive. In the case of a Wistaria that has its vital or nutritive powers (for the terms are nearly synonymous) assisted by tree or trellis, the reproductive does not follow the growth force for ten or fifteen years, while a Wistaria made to assume a self-supporting condition, will bear freely in four or five. The point was made to show that the non-fruitfulness of the Wistaria, as after commented on, was not through the agency or non-agency of insects in cross-pollenizing the flowers, but was rather a matter connected with nutrition; a subject which in its relation to the sexual condition of flowers has rarely been examined by any but the writer of this. This paper on Wistaria was intended to be a contribution with others already made to that subject.—ED. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 8.

BY JACQUES.

Evolution made easy.—The great mathematician, Kirkman, made the following exquisite translation of a well-known definition: "Evolution is a change from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity, through continuous differentiations and integrations." *Nature*, not quite satisfied with this, translates it into plain English, thus: "Evolution is a change from a nohowish, untalkaboutable, allalikeness, to a somewhatish and in-general-talk-aboutable not-at-all-alikeness, by continuous somethingelsifications and sticktogetherness." No opinion or verification is intended.

The Beheading of Flies by a Western Plant.—Professor Gray requests those who have an opportunity of obtaining the plant *Mentzelia ornata* and *M. nuda*, both of which occur in our Western plains and prairies, to investigate whether this cruel behavior to flies is well founded. It is declared by a French naturalist, who has studied it in Paris, that the roughness of the stiff bristles or barbs of each whorl of the plant are interspersed with softer ones, which secrete a viscid matter attractive to insects. Flies thrust the proboscis into the harpoon-like bristles, and when withdrawn the head is held fast. The harder the backward pull, the more extensive is the attachment to the sharp barbs, and the head becoming congested, the insect is seldom able to disengage it, and it is twisted off

by the gyrations made. Let us hear from the now numerous observers of the West, for truly, now that plants are beginning to imitate human beings by cutting off the heads of enemies, is it not time they were looked after and civilized?

It is significant that the monthly magazines continue to devote some space to horticultural topics. *Scribner* has pictures of gardenesque effects, and even condescends to make beautiful strawberry pictures. The time may come when gardening will attract part of the interest now given to agriculture.

In Europe they seek health from all sorts and varieties of natural objects; earth, water, fire and air are sought to renew strength. Even the planting of people, leaving the head and neck alone uncovered. Some prisoners of war were thus served, and left to die of hunger. It is said that one or more on being fed in this condition by humane peasants, when dug up, were found to have greatly benefited by their temporary obscuration. It gradually became a tradition among the inhabitants of Eastern Europe to resort to earth baths for certain maladies. Baths of earth are now taken in various parts of Germany, as are also baths of mud. Gardeners would be experts at this business, and one at my elbow offers to treat all members of Congress in this manner; but declines to supply drinks gratis. It is from the latter business, no doubt, that he expects his profits.

The vine disease is still a source of great anxiety in Europe. A French author gives particulars of which the following is an abstract. Up to the close of last year the ravages of the phylloxera vastatrix in the vineyards of France had extended over more than 1,600,000 acres, the vines in 700,000 of which had been totally destroyed. The appearance of the insect is now reported from the centre of the most famous of all the viticultural districts of France, namely the Medoc. At Chateau Lafitte, which with its 180 acres of vine land was sold about two years ago to Baron Charles Rothschild for \$830,000 is ruined, or nearly so. This and the neighboring estates attached, is valued at many millions sterling. At the rate the insect travels it is probable the whole district will be infected before the end of next year. The government, and the owners are equally alive to the importance of averting the calamity. Sulphuret of carbon applied according to the plan of M. Dumas, appears to be the remedy most in favor; although

a more simple and equally efficacious as well as less costly, is said to be—combining deep trenching and manuring, with application to the root, of turpentine and powdered resin; this has achieved highly successful results. Some are planting American stocks, which are supposed to be less liable to attack.

The Cork trees.—One at least of the South Carolina Cork trees has perfected acorns, as specimens on my table truly indicate.

Cases of the dispersion of seeds was a subject discussed at the British Association. Various specimens were shown, especially of South African Harpagophyton, a plant whose seeds are provided with terrible hooks more than an inch long. These seeds sometimes even destroy lions; they roll about on the sandy plain, and if one attaches to the skin, the wretched animal tries to tear it off, and getting into its mouth, perishes miserably.

Dr. F. Day read a paper before the Linnean Society lately, on the instincts and emotions of fish, combating Cuvier's ideas, estimate of their total want of intelligence. He shows that they construct nests, transport their eggs, protect and defend their young, exhibit affection for each other, recognize human beings, can be tamed, manifest fear, anger, hatred and revenge, utter sounds, hide from danger, betake themselves to protection to the bodies of other animals and have other peculiar modes of defence, leave the water for food, and even different families combine for attack and defense. Their faculties nevertheless, are greatly subordinated and modified compared with those of higher races of the vertebrata.

The Japanese are becoming scientists. Teikichi Nakamura, of Tokio, has written an essay on a new method of determining sulphur in coal.

Salmon.—Whether much has resulted as to placing salmon in the rivers of this country is yet unknown. The extent of the salmon canning on the Columbia river is so astonishing as to deserve notice. As many as three hundred thousand cases have been made up in one season, each case containing forty-eight cans of one pound each. The fish run up the Columbia to a distance of four hundred miles from the sea, finding also, ample room in shallow places for spawning as well as in the numerous tributaries. The average weight is twenty-two pounds, but one has been taken weighing sixty-five pounds. As a rule, a Columbia river drift net is about

three-quarters of a mile in length, and twenty feet in depth, giving a grand power of capture. The cleaning and curing is all done by Chinese. The profit on each can is small, but 3000 salmon manipulated in a single day yield great returns. Fears, however, are entertained that the enormous catch will exhaust the supply.

Among the Chinese who have come to this country a gardener, as we think, has not yet been heard of. At the Centennial there were specimens of curiously dwarfed trees, but they scarcely seemed worthy of a paragraph from anybody. The Americans prefer big trees to small ones; a professor of dwarfing would not find employ among us, and yet it is worthy of inquiry whether they may not have some secrets or plans of horticultural skill worth adopting. To China our gardens owe much. What is more beautiful or profuse than the Wistaria and some of the Magnolias? It is related of the opulent merchant Consequa, that when a supercargo called on important business, he was found gazing on his Wistaria, which received its first name from him, and would not be called off for mere money making.

The lover of knowledge will never be discouraged under the most unfavorable circumstances. Galileo Galilei when a boy matriculated at Pisa as a medical student, but mathematics was his ambition, and we first hear of him listening outside the door of a room in which Ricci, the Court Mathematician of Florence, who was teaching the pages of the Grand Duke a little Euclid. We next find him watching the long swing of the lamp. The observation of the student and the immediate practical application of it, was the forerunner of the greatness of the man. He applied the knowledge to the more accurate measurement of the pulse beat. We know the rest.

An estimate of the annual injury to the coffee plant by the fungus *Hemillia Vastatrix* in Ceylon alone, gives a loss of ten millions of dollars.

Pears.—At the Rochester meeting, Mr. P. Barry referred to the changes which had taken place in the last quarter of a century. An old catalogue revealed the fact that nearly all the pears of that date had been superceded, and of the grapes not a variety with the exception of the Norton's Virginia were preserved, and this was about the way it went through all the old catalogue. Mr. Barry knows.

Little Things.—The value of little things was

never better exemplified than in the career of Chapelier, the Frenchman, who collected all the crusts of bread thrown away in Paris, cleaned them, and put them up in nice little baskets for soups, etc., rebaking them carefully. He retired with a fortune of thirty thousand francs a year. He was a wit as well as a philosopher, and was never weary of saying that "human beings sometimes reasoned, but that they never failed to eat, and very often too much."

Bees continue to be a fruitful subject for study. If a queen is removed from the hive, the bees select certain of the worker's eggs, or even young larvæ two or three days old, the cell is enlarged, and a totally different food is supplied; the result is that in five days, less than would be required for a worker, a queen is hatched. The marvel is, so far, inexplicable, and without a parallel in all animal creation. The use made of bees in fertilizing a peach house, marks the advance and use of scientific discovery. But what appropriate place does such a career find in a horticultural journal? We answer that there are many ways yet untried by which the products of land, and therefore gardeners may be turned to account, and it will be the pleasure and duty of "Notes and Queries" to point out several in future notices.

Gardeners should be interested in the curious replanting of teeth, now practised. Dr. Magitot, a Frenchman, has published full particulars of cases in which diseased teeth were taken out and the root operations of the periosteum was cut away and then were replanted, not transplanted, in the same socket, where after a few days or weeks, they became firm and serviceable. Out of sixty-three operations, in four years, five were failures. The pulling of teeth from one human jaw in order to plant them in another, is very far from being an accomplished fact. See the *Odontological Society's Transactions, The Review of Dental Surgery*, etc.

EDITORIAL NOTES.

EDITORIAL LETTER.—About Raspberry time I looked in on the pretty little city garden of P. R. Freas, the well known and able editor and proprietor of the *German-town Telegraph*. It comprises, I should suppose, an acre of ground, long and narrow as city gardens must necessarily be, and we fancy

few gardens of this character are better arranged to get back more pleasure for the money than this. The house fronts on the street, and all around it are rare shrubs and trees, evergreens and deciduous, with open spaces of well kept lawns with roses and flowers, the whole backed up by one of the most beautiful Hemlock hedges it is any one's good fortune to see. In the front is a neat iron fence, which is just my idea of what a garden fence should be. There is just enough of opening here and there to give views of the very pretty grounds inside, to any one who may stop to examine it,—while there is plenty of seclusion for the proprietor and his friends to sit and enjoy the pleasures of the garden without feeling that the eyes of all the world may be upon them. The land gradually slopes from the house to beyond the middle of the ground, from which it again rises to the extreme end. At this end are the stables, carriage house, grape house, and the best part of the vegetable garden; the fruit department chiefly occupying the centre of the grounds, and of course the floral pets being more near the dwelling. The central and lower level of the garden was once spongy and wet, but by a little judicious filling it is perfectly dry, and gave the advantage of forming a pond where there can be boating, water lilies and other aquatic plants, rustic arbors, over clear and limpid streams, in which fish sport and play in the shade during a hot Summer day, and afford a delightfully cool spot to those who may be in the mood to avoid the broiling sun and enjoy the antics of the finny denizens of the waters. Then there are rock gardens in the moist places, among which Ferns and shade loving plants grow in luxuriant profusion.

Sitting in the summer house, with the placid waters of the little lake in front of me, I was never more impressed with the beauty of a clump of trees instead of the never ending but yet pretty enough single stem tree which is everybody's rage to possess. I have often stopped to admire willows which have been osiered when young, but which have been left to grow up with half a dozen stems from near the ground, and which, when the whole mass becomes fifty feet or more high, and each main branch as thick as one's body, are very beautiful,—but here, across the lake from me, was an English Bird Cherry having twelve main stems, all of which had reached a height of perhaps fifty feet. It was a sight for all seasons. In the Spring with its

myriads of racemes of rather large flowers,—in the Summer by the profusion of large black drupes,—in the Fall by its handsome colored foliage,—and in the Winter season by the abundance of its slender, graceful branchlets, on which, I should imagine the eye would never tire. Even of this pretty tree I have seen beautiful single specimens,—trunk straight and head shapely,—but I think none ever impressed me as this mass seen here. Among the rare trees which abound here is one of the best Lawson Cypress I know of. It is probably 20 feet high, and very shapely from the ground to the summit. A curious growth of Wistaria much interested me. It had originally twined around a large tree which had died, and nothing was left for the coils but to increase in size. Of course the growth is chiefly between the coils, and these were flattened so as to be not more than two inches thick, though nearly six inches wide. In the course of no distant time the coils will meet and unite, and then we shall have the tree enveloped in a uniform living tube of Wistaria wood. Though the lover of Rhododendrons, Roses, and hardy flowers will find quite enough for half a day's study about the dwelling house, he cannot but be attracted to the remarkably healthy fruit trees, especially pears, to which a six feet walk through the middle of the garden invites him. Cross walks at intervals meet him and which divide the garden into numerous blocks or squares. Healthy box edgings, kept low and neat, line these walks, which are graveled or ashed, and kept scrupulously clean. A few feet inside these box edgings, are devoted to old fashioned flowers; Irises, Sweet Williams, Phloxes, Lilies, and such like, and different kinds of vegetables occupy the ground beyond. We have seen some "truck patches" where it is thought that it "costs too much" to have box edgings and nice flowers aside them, because the ground can not be ploughed, but all must be done by hand,—but it is wonderful how much can be done by a digging fork; and when the extra beauty of a garden like this and the general superiority of the fruits and vegetables are set against the ordinary ploughed "truck patch," few but the very poor to whom a penny saved is worth more than a dollar full of enjoyment, would care to choose the slovenly thing we often see. After all it is not a very costly thing to have a garden like this when the right gardener is found. Here one does it all, and an excellent gardener in Mr. McCafferty, evidently has the good "Major" found. The fruit trees

especially seem to know they are in good hands. Seldom have I seen any in a more healthy or self satisfied condition. The leaves were green and glossy, and the fruit almost fully swollen, free from spot or blemish, and hanging in the greatest profusion from every tree. Care is taken, to give an abundance of food, not to injure the roots more than can possibly be avoided, and above all, to take care that they never overbear. Thinning out of superabundant crops is always in order. Dwarf Pears do equally well with standards. Of the latter there are some very old trees; I measured one which proved five feet round. The ground being rather low, and therefore cool, though dry as good garden soil ought to be, is particularly favorable to the Raspberry, Strawberry, Currant, and other cool country species of fruit, while in the higher and dryer places the Grape does remarkably well. All sorts of kinds are being tested as they appear, and this gives the proprietor a chance of knowing whereof he speaks in his excellent family paper. The Raspberry does wonderfully well for him. Kinds which we rarely see, and which people think long since died out, are here in fruit in their original perfection. But then a few hours trouble in bending down the canes and covering with earth in the Fall is not begrudged to them. It is found here that even the kinds conceded to be the hardest are benefited by this treatment.

I went away from this delightful little spot wondering why the like was not more often seen. Here is a space of ground which furnishes fruits and vegetables in abundance, enough for a whole family for a year, with plenty left for an abundant distribution to favored friends,—and all by the labor of one good gardener. Besides this there are pieces of garden art, and numerous trees and flowers to satisfy even a fastidious lover of garden beauty. The reason why not, we fancy often is that too much is attempted,—too large a garden laid out,—too much put on the man in charge. He becomes dissatisfied and careless,—it is “all one to him what goes in the day's work,” the owners are disappointed,—the place becomes a nuisance in weeds and neglect, and then it is found, that “things can be bought cheaper in market.” But after all there must be a genuine love for the garden, such as Major Freas shows for it. Then the gardener is encouraged to have something nice for his employer to praise.

WEEDY SEEDS.—B. J. K., San Francisco,

Cal., says: “I send you enclosed a newspaper slip, by which you see that a legal discussion is going on as to the damage to be borne by reason of dodder appearing among a crop of Luzerne, as I find the Alfalfa is called here. It is contended that there was no dodder before; that it must have come with the Alfalfa seed, and that the seller of the seed must pay all damages. What is the law in the Eastern States?”

There is no law, but the whims of juries. Once we remember a suit was brought against Mr. H. A. Dreer, for selling cabbage seed that would not head. In the Spring they all ran to seed. But it happened that it was shown that these early cabbage seed had been sown early in September, and kept rather warm during Winter, and that the same seed sown in a hot bed in Spring, and set out, headed well enough. Only for this, the jury would probably have unjustly mulcted Mr. Dreer in damages. But this decision shows that the seedsman is responsible for the kind of seeds he sells. But as to the dodder question we cannot say. A man sells a dog, and a customer finds fleas on the animal,—just as the seeds have some parasites among them. We don't know how a jury would decide. One thing is certain, it is to a seedsman's interest to be particularly careful to have pure seeds, and true to name, or he will soon lose trade; and it is to the customer's interest to buy of those who have a reputation for care and a conscience. This is better than guessing at the risk of a law suit.

CATALPA SPECIOSA.—The *Gardeners' Chronicle* says “*Catalpa speciosa* was discovered, or distinguished from *C. bignonioides*, by Prof. Sargent, of Cambridge, Mass.” This of course is an European error, for as we in America know, no one has done more to give the credit which is so justly due to Dr. Warder in this matter, than Prof. Sargent himself.

THE BOTANICAL TEXT BOOK.—Sixth edition. By Professor Asa Gray. Part I. Structural Botany. Ivison, Blakeman, Taylor & Co., 1879. The botanical labors of Prof. Gray approach the marvellous. How he manages to accomplish so much superior work is a mystery. Here is a book that has been some time on our table, and which it seemed very profitable to read carefully through. As this could not be done at one sitting, a memorandum was kept of the odd time given to it, and it foots up thirty hours! The work contains 442 pages, and when we remem-

ber that this embraces only structural Botany, and that parts on Morphology and Physiology are to follow, we may have some idea of the minute and yet extensive labor Dr. Gray has bestowed on his task. It must be a great pleasure to the distinguished author to know that his heavy labors are so highly appreciated as the call for a sixth edition of this work indicates. When he first entered the botanical field it was not highly cultivated. Much, indeed, had been done for descriptive botany, and in the more philosophical departments, Barton, Nuttall and others had worked well. But much remained to be done, and notwithstanding the zeal of those who loved the science in those days, it is but fair to say that the chief dependence of Americans was on European works. It is not so now. The work of foreign botanists is no less esteemed than it ever was, but American botany has been brought to a higher level. It ranks with any other in the estimation of the world, and it will be no derogation to the work of the many excellent American Botanists now in the field to say that to Dr. Gray the chief honors in this high character belongs.

It is interesting to notice how botany has progressed during the past thirty or forty years as indicated by this work. Before us lies the second edition of this work, issued in 1845, of 496 pages, covering all the ground. Now something less than this only comprises one-third the task. In this he has now, however, good assistance; two of his former pupils, Goodale and Farlow will undertake the other volumes.

These works are, as their name implies, text books. They are intended as works of reference rather than for consecutive study; and they are for those who may regard themselves as tolerably perfect in the science, as well as for those who are at the lower end. It would have been better if an index had been given to it instead of a mere table of contents; this would have enhanced its “text” book character.

By a comparison of this with other editions it is interesting to note how Dr. Gray's views of things have changed in some respects. This is to be expected, for it is no use to live unless we learn. We note this in order to encourage students to explore even beyond where our esteemed author has carried them. He would be the last to regard himself as infallible, and would be as glad as any to have weak places strengthened, or dark passages made plain. It strikes us as not improbable that the theoretical

conception of the plant unit or “phytomer,” which he adopts, will ultimately prove untenable. By this idea all of a stem between each node may be regarded as the organized plants' lowest terms. Under this conception one can scarcely understand how any portion of an internode could ever be made to become a perfect plant. Dr. Gray, if we understand him correctly, seems to regard this as a test, for at p. 317 he remarks, “the phytomer is in itself indivisible, except by mutilation,” and in the same chapter we are told that this ideal phytomer is the analogue of the individual in animals, that is to say the animal is indivisible. But though it is true that the parts of an internode will not often divide and form individual plants, they sometimes do, as good gardeners know. The stems of *Torenia Asiatica* have been chopped to “mince meat,” and all the little pieces grow. Moreover, though in the case of woody trees, a Horse chestnut for instance, there may be a space of a foot between two nodes, and if we cut these apart in a one year old shoot, no growth will appear nearer than from the bud already formed below; this “individuality” disappears after the space has become a year or two old, and a bud, indeed many buds will form from any part of the space that may be cut across. Indeed it appears to us that the whole facts connected with the growth of adventitious buds are opposed to the phytomic conception.

Further, we expect to see in the future considerable modifications of Dr. Gray's views in relation to conceptions in cross-fertilization of flowers, now introduced in Dr. Gray's Text-books for the first time, as if the logic were incontrovertible. This speculation as formulated by Mr. Darwin, is that it is an almost universal law of nature that all the higher organic beings require an occasional cross with another individual, that no hermaphrodite fertilizes itself for a perpetuity of generations. But as the phytomer in the plant is the analogue of the individual in animals, it is not easy to understand what relation such a formula has to do with plants at all. Even as regards the facts of fertilization in flowers, it is now known that though there are in many cases evident arrangements for inter-crossing, the great majority of plants are habitually self-fertilized, even in those cases which have these adaptations for cross-fertilization. There may be, therefore, millions of plants of the same species in the world from self-fertilized seed for every single plant from

a cross-fertilized one, and the theoretical advantages of a cross must be immeasurably overborne by the actual fact of numbers. It would be the old story of the Lilliputians against Brobdignag. Indeed, it is in the reasonings on the objects and uses of structure, and the design in the arrangements that one may expect to see the greatest advance made in future editions. When, for instance, we are told that the glutinous coating in the bud of the old-world Horse Chestnut is to "ward off water more effectually," we cannot but see that the buds of the American kinds which have no viscosity, ward off water equally as well; of course there are some good reasons for all these things. Dr. Gray does well in suggesting the best that can be thought of now. We may learn more in the future than, as the progress made in this work shows, we have known in the past; and this fact is encouraging to students who may feel that even to the best and wisest, all things are not yet made plain.

THE WINDOW FLOWER GARDEN. By Julius Heinrichs, New York. Orange Judd Company. This is a prettily bound work, illustrated profusely, well printed, and containing a great deal of useful information. The great trouble with books of this kind is that they are costly if large, and obscure if brief. If this little book of 92 pages has any fault it is brevity. For instance the window gardener is told that if the window plants are kept constantly syringed they will not be much troubled with insects; but how to syringe the plants without destroying the furniture about the window is not explained. Again, under the head of insects reference is made only to the green fly and the mealy bug, while there are others equally destructive that might have a few words spent on them. However a nice little book at a small price cannot be expected to tell everything. The many useful hints it contains will be well worth all that is asked for it, and prove very useful to housekeepers.

REPORT OF THE DEPARTMENT OF AGRICULTURE FOR 1878.—Commissioner Le Duc must be congratulated on having produced in this, one of the most valuable reports ever issued by the department. Too often the bulk of these reports has consisted of the correspondence of irresponsible parties whose opinions are of no importance, and whose communications should be admitted to respectable agricultural papers only because

they might "bring out" something better from more intelligent readers. In a work of a national character like the Report of our Department, they are wholly out of place. There is very little of this style of blemish in this issue. The work is for the most part, by persons in whom intelligent people have confidence, and what they reported will stand good for reference during all time. A good proportion of the work is taken up with Notes on Tea, Coffee, Sugar, and other subjects that may possibly be produced in our country. The Commissioner has been made the butt of many newspapers which mistake wit for wisdom, because of his investigations in these directions. Some of the investigations may not have been wisely pursued, and we believe occasionally there have been needless repetitions to find out what has been already learned; but these faults are generally inseparable from tasks like these. No one knows better than those who have been many years in editorial positions how new and good ideas have to be dragged before the public over and over again before they make much impression. We have no idea that all the so-called "hobbies" of the Commissioner will become practical. Some of them we feel sure will scarcely be. But if even one new "staple" shall be added to what we now have, by his efforts it will be worth all his administration has cost, and he may well be proud of the results.

The reports of the Botanist, Chemist, Superintendent of Gardens and Grounds, Entomologist, Swine Doctor and Statician are all full of useful information; and the illustrations of grasses and other subjects make the text clear.

We learn for the first time, that the "beggarticks" which the newspapers have been telling us, is a sort of Boragewort, is really a leguminous plant, a species of *Desmodium*; and the Canaigre root—a Mexican plant, and we may add a famous medical drug in dysenteries, is found to be a Polygonaceous plant allied to the Rhubarb or Dock. The statement that the olive will grow where the thermometer falls to zero, is a mistake. It has been known to stand this temperature in France; but in Pennsylvania, as we can speak from personal knowledge, it will die under 15° below freezing point. The day is gone by when the thermometer is to be taken as an absolute guide to a plant's hardiness.

Another interesting matter has been brought out by this report in regard to the Japan Persimmon; while some have been easily killed by

light frost, others have never been in the least injured. This will explain the apparently conflicting experiences recorded in our pages; and gives some hope that by a judicious selection of varieties, fine fruit may be grown much further north than has been believed possible the past year.

MONTREAL HORTICULTURAL SOCIETY.—Report for 1878, from Henry S. Evans, Secretary. A very valuable document, containing among other interesting papers, a report on Canadian timber trees, by A. T. Drummond. Birds and insects, injurious and beneficial, have the Society's compliments paid to them.

AMERICAN MANUAL OF PARLIAMENTARY LAW.—By George T. Fish, Rochester, N. Y. There are few Americans but are interested in the proper management of societies or other organized bodies. Certainly of all Americans, those connected with horticulture have a great deal to do with deliberative or discussional assemblies. This little book of Mr. Fish's is an excellent thing for them. It contains all the rules; and the divisions are arranged as is the alphabetical index of a ledger, so as to be referred to instantly. We have seen many works on this subject, but regard this as the cheapest and best.

RUSSELL P. EATON.—This gentleman, for twenty years Editor and Proprietor of the *New England Farmer*, has parted with his interest in this excellent agricultural weekly. Mr. Eaton is a high-toned, intelligent gentleman, and one who spared no pains or expense to get at the exact truth of what he reported. We are always sorry when we have to close "official" relations with people like this. Editorial life has such all too few, while the outside world is overflowing. We don't know what possessed the man to do it.

DR. EDWARD FENZL.—Dr. Fenzl, Professor of Botany at Vienna, and after whom the well known Fenzlia of our gardens is named, died on the 29th of September, in the seventy-second year of his age.

DEATHS OF NOTED FRENCH POMOLOGISTS.—M. Baltet at the age of 80, and M. Willermorz aged 76, are among the recently deceased.

SCRAPS AND QUERIES.

THE INDIAN QUESTION.—A friend who has in past times been the traveling companion of

the Editor through wild Western regions, thus writes:

"I have just returned from south-eastern Kansas, and thought of you when I picked up this little (enclosed) arrow head, which I am sorry is not a better specimen. Ever since you took such an interest in our friend B's Indian stories, I never see an Indian but I think of you. The traces of Indians in the locality I have been lately, are nearly as completely obliterated, as where I now reside. The last Indian trail has about disappeared from the north bank of my ravine; and the only signs I saw twenty miles south of Fort Scott, were about a dozen trails parallel with each other, where mounted Indians had been in the habit of riding to Fort Scott to draw blankets, and rifles, powder and bullets from the government to shoot the settlers, and hunting knives to scalp the poor women and children. You and I judge Indians from different standpoints, just as florists judge roses from different standpoints; some for their form and color, others from their odor, and others from the description in the catalogue. I confess that their odor may have prejudiced me against them, for I know I do not admire them as you do. I think you admire them for their color and description, and that you have taken the description from Cooper (in his novels) and the coloring from Catlin in his pictures. Really this is too serious a matter for jest, and I do not know what is to be done with them. All sentimentality must be laid aside, sometime, and then they will be treated like other people. The government, when they want any white man's land for the public convenience condemns the land and pays the owner what it is worth, and it seems to me they could do the same with the Indians, and make them obey the laws just as white men are compelled to obey the laws or abide the consequences. If a lot of tramps should band together and murder a few such men as Gen. Canby and our friend Meeker, I do not think the government would send a few well meaning gentlemen to parley and have a month's talk with them.

[Perhaps the nation began wrong, and we are suffering for our own errors. No man has a natural right to the soil. There is as much truth as poetry in the song of the ancient: "The earth is the Lord's and the fullness thereof." Mankind start on the earth all alike; but some make two blades of grass grow where the Lord only made

one, and society regards it as its interest to give that man a title to that which he improves; and it is then his to sell, to give or to deed to others.

But we started to recognize a right and title to land which was never improved. There was nothing in nature, or in any society law of right which gave a man who merely ran wild over a piece of land a title to it. But we pretended to believe there was; and we gave beads, red rags and other little things, to cover up our sham belief.

If the Indians do anything to make the land of any more value than when it came fresh from the hand of nature, that value should be just the measure in which they should be paid. They have no other rights, or ought to have. But the trouble is we have taught them differently, and it requires superior statemanship to deal with the question, and do justice to all.—ED. G. M.]

THE SUPERINTENDENTS OF PUBLIC GARDENS.—J. says: "You hit the nail square upon the head when you say that the most perfect machinery is the most likely to win, and so reasoned a neighbor of mine who has been many years in Select Council. He told me that to be able to run understandingly with

each and every "machine" in the city that he joined every secret oath-bound society in the city. And now Mr. Editor, as you appear perfectly satisfied that the superintendents of our public parks are not the right men in the right place; who are they, and who appointed them to the position that they occupy? If they are members of secret oath-bound societies,—which you can easily find out, and which my experience in politics would say that they were—it was not chance but a regular carried out policy that put them in over the heads of the worthy diffident man who would rather lose the office than join an illegal oath-bound society to gain it."

[Our correspondent, whom we know to be one of the most worthy men who ever lived, asks us a question; but his own letter contains the answer. It was the most perfect machinery, which placed the incompetent men in charge of the public gardens. They who would have better men, must perfect machinery, and have competent engineers to run it, if they would have their desires respected. The trouble in all these questions seems to be that the fleet hares knowing that they ought to win, lie down and sleep, while the miserably slow tortoises keep pegging away, and get in first at last.—ED. G. M.]

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

JANUARY MEETINGS.—A large number of State Societies hold meetings in January, and we should be glad to call attention to them if we received the notifications in time. All we have before us as we write are those which follow.

KENTUCKY STATE HORTICULTURAL SOCIETY meets at Shelbyville on January 13th, 14th and 15th. T. S. Kennedy is President; J. Decker, Secretary, Fern Creek. We have no further particulars.

NEW YORK HORTICULTURAL SOCIETY.—They meet at Republican Hall, 55 West 33d street, New York, on the first Tuesday of each month.

PENNSYLVANIA FRUIT GROWER'S SOCIETY.—The next annual meeting of this Society will be held in Bethlehem, Pa., on Wednesday and Thursday, January 21st and 22d, 1880. Excursion rates will be granted from all points on Philadelphia & Reading Rail Road, also by North Penn. and Bound Brook divisions from Philadelphia and intermediate points to Bethlehem and return. Tickets will be good from Tuesday, Jan. 20th to Monday, Jan. 26th, inclusive. Excursion tickets can be obtained only upon presentation of a printed order furnished by the Companies, which, with other information, can be had by addressing the Secretary, E. B. Engle at Marietta, Pa. The Society has not held a meeting in this section of the State for some years and an interesting and profitable meeting may be expected.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

When we spoke recently of pruning trees, it is hoped the frequently seen hacking of street trees was not understood. In most of our large cities, street trees have disappeared, in some cases because of gas at the roots through escapes from the pipes; in other cases because large flat flag-stones have been placed close up to the trunks instead of leaving a few feet open and covered by an iron or wooden grating; in some others because horses have been allowed to gnaw the bark off; but in most instances from the annual visit of the tree-pruner. A tree seems to grow very strong after its head has been cut away; but the effort really weakens its constitution, and every experienced person knows that such annually pruned trees die young. This pruning generally is without any reason,—but sometimes it is a necessity from an improper kind of tree having been selected.

Some people must have "fast growing" trees, at any sacrifice; but when they get so tall that only the chimney pot is shaded, they have to cut back so as to make a leafy growth to screen the parlor windows or front door. Again trees are often selected for comparatively narrow side walks, which naturally make trunks eight or nine feet round when full grown, and there is not room to spare for them. The annual trim-

ming of the top, by weakening the constitution, prevents the increase of girth in the trunk, and thus longevity has to be sacrificed through this early mistake. Much of these mistakes in planting comes from reliance on tree peddlers, or from nursery growers who are not well versed in their profession. Believing that all people want a great deal of bulk for a very little cash, they naturally run on trees that will make three or four inches of girth in a couple of years, rather than one that will take four or five to reach the same size. They get money sooner, and the customer pays less. But all people are not like this; there are many who want permanently good things, if they only know what they are, and there are no greater benefactors to this class of people than writers like the Ellwangers, Barrys, Parsons, etc., who have of late given a world of information about ornamental trees. Also, we must have a word of caution against the evergreen pruner. In our mind as we write, we have Germantown with its immense number of tasteful and well kept places, but with one at least in which are some hundreds of Norway Spruces all cut into a sort of egg-shaped figure, and looking for all the world like the green moss-made toys which children have about Christmas time. For what purpose this unusual expense is a mystery; for there is not the merit of art in this clipping, as is often claimed for

European tree trimmers. If for instance, some of the trees were cut like the following English Yew, which we take from *Gardening Illustrated*, we might have some praise for the pruner, whatever we might think of the tastefulness of his work. See cut below.

We are not opposed to all this kind of pruning, however, as some garden authors are. No doubt a "naturally" grown tree is very pretty,—perhaps nothing in nature is more so. But a close Irish Yew or Juniper under some circumstances, is as pretty as a spreading one, and there is no reason why we should not produce by the knife, what we admire when no knife is used to produce a similar result. No one objects to a neatly pruned hedge,—to a pruned arch over a small entrance gate. In many cases pruned plants have a wonderful effect. We confess a liking for these things sometimes,—but when over done they are repulsive. The best time for all evergreen pruning is after all danger of cold winter winds are gone. We have taken so much room with this important matter of pruning, that we must close by brief hints only on other important spring matters. Still, in regard to

pruning we may say that many delay pruning shrubbery until after severe weather passes, so as to see what injury may be done,—but with March all should be finished,—taking care not to trim severely such shrubs as flower out of last year's wood, as for instance, the Wiegela—while such as flower from the spring growth, as the Althæa, Mock Orange, etc., are benefited by cutting back vigorously.

Those which flower from young wood, cut in severely to make new growth vigorous. Tea, China, Bourbon and Noisette Roses are of this class. What are called annual flowering roses, as Prairie Queen and so on, require much of last year's wood to make a good show of flowers. Hence, with these, thin out weak wood, and leave all the stronger.

To make handsome, shapely specimens of shrubs, cut them now into the forms you want,

and keep them so by pulling out all shoots that grow stronger than the others during the Summer season.

Graft trees or shrubs where changed sorts are desirable. Any lady can graft. Cleft grafting is the easiest. Split the stocks, cut the scion like a wedge, insert in the split, so that the bark of the stock and scion meets; tie a little bast bark around it, and cover with Trowbridge's grafting wax, and all is done; very simple when it is understood, and not hard to understand.

If flowers have been growing in the ground for many years, new soil does wonders. Rich manure makes plants grow, but they do not always flower well with vigorous growth. If new soil cannot be had, a wheelbarrow of manure to about every fifty square feet will be enough. If the garden earth looks grey or yellow, rotten leaves—quite rotten leaves—will improve it. If

heavy, add sand. If very sandy, add salt—about half a pint to fifty square feet. If very black or rich from previous year's manurings, use a little lime, about a pint, slacked, to fifty square feet.

If the garden be full of hardy perennial flowers, do not dig it, but use a fork, and that

not deeply. Dig garden ground only when the soil is warm and dry. Do not be in a hurry, or you may get behind. When a clot of earth will crush to powder as you tread on it, it is time to dig—not before.

If perennial plants have stood three years in one place, separate the stools, replanting one-third, and give the balance to your neighbor who has none.

Box edgings lay well now. Make the ground firm and level, plant deep, with tops not more than two inches above ground.

Roll the grass well before the softness of a thaw goes away. It makes all smooth and level.

In planting trees remember our repeated advice to use the pruning knife freely.

The rule for pruning at transplanting is to cut in proportion to apparent injury to roots. If not much the worse for removal, cut but little of the



A TRIMMED YEW TREE.

top away. Properly pruned, a good gardener will not have the worst case of a badly dug tree to die under his hands. In a nursery, where these matters are well understood, trees "never die."

COMMUNICATIONS.

TWO WELL KEPT PLACES.

BY MR. MANSFIELD MILTON.

Being recently on a visit to Sharon, Pa., I visited the greenhouses of Mr. Boyce, also those of Mr. Curtis, judging these gentlemen from collections of plants at both places, they possess horticultural tastes of a high and refined kind. The places are adjacent to each other, and situated on an elevated portion of the town of Sharon, which is one of the iron manufacturing places on the banks of the Shenango river.

I visited the place of Mr. Boyce first, and found plants and houses in excellent condition,—the plants in the best of health and the houses clean and orderly. They consist of four plant-houses and a large grapery. As the vines were dormant at the time I was there, and covered up, I cannot say in what condition they are in, but judging from the surroundings they are in a condition to give satisfactory results. Of the plants in bloom, I noticed among a general collection of winter-blooming plants, some fine specimens of Begonia Ingrahamii, a fine, bright crimson, flowering kind, with bright green leaves; the spikes are borne on good long stalks, making them useful to work into baskets and other floral designs.

A good spike of Lælia anceps was produced from a healthy-looking plant. This is a beautiful orchid, and when well taken care of, as it is here under the treatment of Mr. Murchie, gardener for Mr. Boyce, well repays all labor bestowed upon it. Large plants of Adiantum Farleyense in luxuriant growth I observed in this collection, and alongside were fine plants of the beautiful Adiantum gracillimum. What a difference between the size of the pinnules of these species, but both beautiful.

Some of the finest "heads" of the double Poinsettia I have had the good fortune to see, are grown in a house here. This has never been much of a favorite with me, but under the conditions I saw here, I must say it is simply grand. Fine spikes of Euphorbia Jacquinæfolia made the stage decorations graceful with its

bright crimson flowers. A good plant of Lasiandra with its peculiar maroon-colored flowers was also conspicuous.

To mention all the well-flowered plants in this collection would take up too much space. Every plant was a specimen in itself, and so well arranged that the stages looked like well managed groups of different colors, giving considerable credit to Mr. Murchie for his skill and close attention.

Upon entering the houses of Mr. Curtis, I found Mr. O'Brien, the gardener, just putting the "finishing touches" on a well-arranged basket of flowers. It was of large size, the flowers used being white Camellias, Primulas, Carnations, Cyripediums, Poinsettias, etc., and on a white ground with scarlet Bouvardia were the numerals 86, being the age of the lady to whom the basket was to be presented as a New Year's present. The general collection of plants here are much the same as at Mr. Boyce's place. There is, however, a most select collection of orchids and well grown. I observed two well grown plants of Dendrobium densiflorum, an evergreen orchid from India, with very showy flowers. Another evergreen orchid of similar habit there, was a good specimen of D. Farmeri. A well-flowered plant of Cyripedium Ræzlii, but which I considered a very inferior variety, the petals being shorter and poorly colored compared with any I have seen. The beautiful Cyripedium niveum was also well represented, besides many more good kinds. Chinese Primulas were well grown, large flowers and abundance of them.

Some excellent specimens of Azaleas and Camellias, also Palms, Dracænas, and hosts of other valuable plants. There are five houses here and all heated with flues in which soft coal is used. Considering this and the excellent health of the plants, considerable credit is due to Mr. O'Brien, demonstrating, in fact, that good plants can be grown with good management in houses heated by flues.

PRESSING EARTH FIRM.

BY RUSTICUS, NEAR LEXINGTON, KY.

Several days ago I took occasion to send an article to the *New York Weekly Tribune*, in vindication of that noted horticulturist, Mr. Peter Henderson and "firming." I was sorry to see some slurs cast upon him; but as his high repute as a tiller of the soil will not break down under them, his warm admirers need have no fears. I

am glad, that he has brought into such prominent notice so important a principle in agriculture as "firming," or packing the earth about seeds. I am persuaded that it is not practised enough. Mr. Henderson, in his eminently practical paper before the American Association of Nurserymen, at Cleveland, Ohio, June 18th last, very clearly shows its neglect in New Jersey. I doubt not a vast quantity of seed fail to germinate because they are not "firmed," and the seedsman gets the entire blame. By test it has been found that only a certain proportion of all seeds of grasses and cereals grow, but I opine much is due to having the seeds too lightly covered. The earth must be well settled to its place, that the seeds may at once appropriate its essential nutriment. Pressing the soil firmly about the seed closes all air spaces of much size, and keeps the dry winds from penetrating to it, thus greatly helping to save its drying out, and the germ perishing. Mr. Henderson very properly cautions against firming when the ground is too damp. It is better not to sow when it is wet. The hot sun may bake as hard as a brick. The nearer the condition of an ash heap the better. Last Fall we drilled wheat when the dust filled the air. There had been a protracted drouth. We sent the roller over it immediately, with a very gratifying result. The wheat sprang up at once, and flourished, notwithstanding the drouth continued for weeks. Wheat that we did not roll, was greatly inferior to it. After seeds have developed into plants, "firming" should be reversed. The earth kept loose and friable withstands drouth better and absorbs the fertilizing constituents of the atmosphere more readily. As Mr. Henderson asserts, "firming" is even more necessary in the case of newly set trees, the same principles applying. Another advantage attending it is the comminution of the soil. Pulverization sets free the growing properties of the earth, to be taken up by vegetation.

[As we noted some time ago, we had to complain of the New York *Tribune's* manner of treating its contemporaries, whereupon it at once stopped the exchange, and we have had to worry along and get its precious matter indirectly as best we could, so that this is the first knowledge we have that Mr. Henderson has been "done for" in its pages. We can only, therefore, take the matter as our correspondent has presented it, and say that when we heard Mr. Henderson's remarks at Cleveland, it seemed to us one of the best common sense papers

ever given to a public body,—and we should have transferred it in full to our pages, only that we felt it would commend itself so strongly to those who have had experience, and receive so wide a publication, that it would cease to be "news" before we could help it along.—ED. G. M.]

WODENETHE.

BY PICA.

The following notes of the beautiful country seat of H. W. Sargent, Esq., of Wodenethe, were contributed to the New York *Evening Post*:

In the highlands of the Hudson, just above West Point, in the midst of the beautiful scenery which the genius of Irving has consecrated, thirty-eight years ago Mr. Henry Winthrop Sargent bought about twenty acres of forest land, and began the construction of a country seat which to-day is doubtless more widely and favorably known than any similar place in America. Wodenethe, he called it in the language of the Saxons: that is to say, 'sylvan promontory.' It has cost him a hundred thousand dollars already. I do not know how much more money it will yet absorb, but each year improvement follows improvement. 'I have been painting a picture,' he said, as we were strolling through the grounds, 'and the finishing touches are still to be given.' Students of landscape gardening know Mr. Sargent as the editor of Downing's great work on the subject, as a contributor to periodical literature, as an importer of rare trees and shrubs, and as a propagator and improver of the same. The author of Scott's 'Art of Beautifying Suburban Home Grounds of Small Extent,' speaks of 'our neighbor and correspondent, Mr. Sargent of Wodenethe on the Hudson, who passed a couple of years abroad, curiously gleaning all clever foreign notions that were really worth naturalizing at home,' and adds that 'Sargent's hemlock,' a tree found growing wild by Mr. Sargent on Fishkill Mountain, and cultivated by him, 'bids fair to be one of the most curious and interesting additions to our stock of gardenesque evergreens—bearing the same relation to the common hemlock that the weeping beech does to the common beech.' Another writer describes him as 'famous among amateur horticulturists for introducing new evergreens from Europe, Asia, Oregon and California,' and notices his success in domesticating, where others have failed, the deodars and cedars of Lebanon, the silver foliage of the *Pinus ex-*

celsa and the bold front of the *Pinus ponderosa*. Next, indeed, to his services with the pen must be ranked his many and persevering importations from every quarter of the globe; unless one should choose to lay greatest stress upon the patriotic purpose which has multiplied and circulated these specimens for the adornment of other homes. Wodenethe is a paradise of exotics.

Yet these do not constitute its chief attraction. It is pre-eminently a paradise of vistas. Art has so planted and disposed the trees on the borders of the twenty acres that the visitor might believe himself in the midst of an estate comprising hundreds of square miles. The spot was selected by Mr. Sargent for its natural advantages. In front of and partly around it rolls the lordly Hudson. Behind, are the Fishkill Mountains, one of them sixteen hundred feet high. At the left, across the gleaming stretch of river, tower the rounded heights of Cornwall and West Point in the fine blue of the rare old hills. At the right is a rolling surface cultivated to the base of distant headlands. Yet all around the place are villages, factories, shanties, highways. Only you do not see them. The trees and shrubs that belt Wodenethe are placed so as to shut off such sights; and where there are openings in the boundary line of the estate the eye looks out upon charming vistas of river, valley, glade and mountain, that seem to be parts of one magnificent country seat. No gentleman in this country has succeeded as Mr. Sargent has in peaceably sequestering the property of his neighbors. Part of the work was done simply by the use of the axe. Trees have been cut down where the views beyond them were pleasing; they have been planted where the scenery in the distance was of a sort to be hid. The illusions created thereby are sometimes amusing. In one instance his artistic chopping brought within a hundred yards of his library window a part of the river that really is three-quarters of a mile off. Mr. William Cullen Bryant used to tell how one evening, when seated at that window, he saw a boy fishing in the Hudson from a spot close by on Mr. Sargent's lawn. He expressed his surprise that the river was so near. The place from which the lad had thrown his line was on the verge of a steep declivity, at the foot of which the water seemed to flow. Not until the poet had walked there the next morning did the false show vanish. The young fisherman had planted himself temporarily to keep up appearances.

To name the varieties of trees on Mr. Sargent's estate would be of more interest to the botanist than to the general reader. I will not enumerate the Homeric list. It represents almost all the varieties ever acclimated in this country, and it is constantly receiving accessions. You remember the words of the Autocrat of the Breakfast Table: "I have a most intense, passionate fondness for trees, but if you expect me to hold forth in the scientific way about them, to talk for instance of the *Ulmus Americana*, and describe the ciliated edges of its samara, and all that, you are an anserine individual." The most beautiful of the specimens are not aboriginal. I do not know whether or not the owner has yet succeeded in naturalizing the *Eucalyptus*, which amateurs in England are so fond of, and so unfortunate with. But if the species has a chance in this climate you may be sure that it will be made to flourish at Wodenethe. Weeping birches, weeping beeches, weeping ashes, weeping larches, weeping elms and weeping willows are specialties there, and so are purple-leaved trees and shrubs, and the silver and golden tinted evergreens from Japan, while oaks, elms, chestnuts, maples and other standbys appear in choicest varieties. The magnificent palms constitute a show by themselves. There is scarcely a mountain, a shore or a plain in Europe that has not contributed to Wodenethe the 'threaded foliage through which the western breezes sigh.' And there is not a hungry specimen on the place.

Velvet grass and umbrageous tree alike have been well trenched, and are, in consequence, well fed. I should not be surprised to learn that the roots of some of the common clover go down four feet into the soil. The late Mr. Downing said that he had seen clover roots as deep as that. It is trenching that does the business, and Mr. Sargent has lately done as much as any writer in this country to enforce the importance of depth of soil for trees and lawns. Of course there is no setting of trees in formal rows, no alternation of the willow and the rougher-rinded pine around the house, no planting of flower-beds under the drippings of the monarchs that line the broad approach to the dwelling, none of the hundred discrepancies and offences that good taste prohibits. The place is a picture, and the painter is an artist, especially in his sense of symmetry and color, and in his effects of light and shade. 'Let in through all the trees come the strange rays.'

EDITORIAL NOTES.

DESMODIUM PENDULIFLORUM.—This very beautiful autumn-flowering perennial plant, is now becoming well known in gardens. The *American Agriculturist* notes that one very often seen under this name is really *Lespedeza bicolor*.

MEMORIAL TREES.—Our papers often note the planting of memorial trees by distinguished people in Europe, but it is right to record that this pleasant practice also prevails among ourselves. General Grant recently set out one in Chicago, and by the following from a Washington paper, it will be seen some have been set out in Washington:

"One of the most attractive and interesting places in the city is the Botanical Garden. It is situated between First street west and Third and Pennsylvania and Maryland avenues. Its history dates back before 1800. When the Carrolls, General Washington and others laid out the grounds around the capitol, this site was selected for the botanical garden. It was not much improved until a Scotchman by the name of Wm. R. Smith was appointed superintendent. Now it is noted for its choice and rare collection of flowers, ornamental and historical shrubbery in the greenhouses, while the grounds are dotted all over with historical and foreign trees, which add a great value to the grounds. Mr. Smith is still the superintendent, having occupied the position for twenty-six years, and done enough valuable work for a monument to any man's memory. As you enter the gate on First street, to the left of the walk stands an oak planted by Hon. J. J. Crittenden, of Kentucky. The acorn he brought from Kentucky. It is now quite a tree, and its acorns are eagerly sought after by his admirers and people who take an interest in such matters. About fifty feet south of it stands a modest hemlock, planted by Senator John P. Hale, of New Hampshire. Near the east end of the main conservatory, which is three hundred feet long, stands a pine from Japan. It has a very peculiar appearance and is quite a curiosity. Just south of the fountain, on the walk leading south to Maryland Avenue, stand the cypresses. The one on the right was planted by Forrest, and the one on the left by Col. Forney. Just before you reach the fence stands the famous Sumner-Bingham tree. When congress was attempting to pass an appropriation to improve and grade the park east of the capitol,

Sumner made one of his finest speeches to save a particular tree that he thought was an Italian Beech. John A. Bingham, of Ohio, also had an admiration for the same tree, which almost amounted to reverence. He spoke to Mr. Smith about it, and he (Smith) proposed to plant one of the same kind in the Botanical grounds for them, and it stands there to-day in honor of the two distinguished statesmen. Just north of the fountain stands two evergreens from California. The west one was planted by Senator Latham, of California. This tree is very thrifty and has a beautiful foliage. The east one was planted by Senator Pierce, of Maryland. This tree presents quite a drooping appearance. Senator Latham pressed the Pacific Railroad bill, and Senator Pierce was its bitter opponent and leader of the opposition. Personally they were friends. So, when the bill was passed, Senator Latham had two trees, of a peculiar kind of evergreen that grows in California, sent to him. One he planted himself, in honor of his triumph; the other he gave to his friend, Senator Pierce, who so sternly opposed the measure. On the west side of the grounds stands an oak, planted by Mallory, of Kentucky, who so ably represented the Louisville district. Just west of the main conservatory stands the evergreen planted by Speaker Kerr, of Indiana. Near enough to it to almost mingle with its branches stands the fir tree, planted by James F. McDowell. Some forty feet north-east of these stands a buckeye, which came from Thomas A. Hendrick's home. Thad. Stevens was a great friend of the Botanical Garden, and managed and controlled the appropriations for it in the house. A tree was planted in honor of him, but it happened to stand over the raging Tiber, which burst from its bounds and destroyed the Stevens tree. I have given a fair synopsis and a general idea of this garden; of course it would be too tedious to give an account of every valuable and foreign tree."

BARBED WIRE FENCES.—We have no idea that the barbed iron or wire will ever take the place of good post-and-rail, or a well-made Osage or Honey Locust Fence, wherever these can be easily made. But there are many places in which these cannot be had, and people will want to know all about wire, as well as other substitutes. For these the December *American Agriculturist* will be welcome, for the whole subject is therein thoroughly discussed.

THE DESTRUCTION OF THE LAUREL HILL CEDAR OF LEBANON.—It will not restore the dead tree to life, and all reproach on the poor thing who cut down the tree will do no good now. But it must have some influence on others who might be in the atmosphere of a similar evil spirit, to know how the intelligent community regards such a dalliance with a demon, and for this reason we give the following from the January *American Agriculturist*:

"At Laurel Hill Cemetery, in, or near Philadelphia, there were two Cedars of Lebanon, each some 50 feet high, and well known to lovers of trees as among the finest specimens of this Cedar in the country. We learn from a late *GARDENER'S MONTHLY* that one of these trees were cut down! And why? Because the tree was in the way; it interfered with the reading of the inscription on some paltry gravestone or monument! We say 'paltry,' with no reference to the particular handful of dust that the stone may for a few years mark, but *any* monument whatever, by the side of such a tree is a miserably paltry affair. A few dollars and a few day's work may restore a gravestone or a monument; whatever lettering there may be—of no possible use to the dead, and only flattering the vanity of the living who put it there—could be easily replaced. But that tree! The miserable marble thing of to-day would sink into utter insignificance before *any* tree 50 feet in height—but before a Cedar of Lebanon of 50 feet, before any Cedar of Lebanon, how miserably paltry seems any work of man. It is well to be charitable, and assume, difficult as it may be, that this person knew no better. Could he have known that the very ancestors of this tree are now regarded as among 'the most renowned natural monuments of the universe;' that they furnished Solomon wood for the Temple; that this very tree descended from those mentioned all through Sacred History; had he known that to this day even the Arabs hold the ancestors of this tree as sacred, could he have cut down a Cedar of Lebanon, as if it were a used up telegraph pole? This tree would no doubt, live for centuries after the elements had obliterated the letters chiseled into the slab or monument; centuries after the miserable piece of carbonate of lime had crumbled away; centuries after the memory of the dead whose monument was to be preserved; and centuries after the memory of the preserver of the monument had passed away, would this Cedar of Lebanon have stood,

and been an object of interest and admiration,—but it was in the way of somebody's head-stone, and was cut down!"

A HYBRID FIR.—Mr. Henry Vilmorin took a tree of *Abies Pinsapo* and *Abies Cephalonica* and dusted the male flowers of one over the young cone or female flowers of the other. Only a single perfect seed resulted. This has proved to be a beautiful hybrid which is now eight feet high.

THE VINE GARDEN.—Portions of one's grounds especially set apart for the culture of hardy and woody climbing vines, would have a very beautiful effect if the trellises were designed to secure a variety of form, and then the shade some of them would afford as arbors would be a luxury in itself in the warm days of summertime. The writer will not soon forget the beautiful effects in the scenery made by *Vitis indica*, as it rambled over trees and low bushes along the Kansas River and other points in the South-western States.



MAURANDIA BARCLAYANA.

Besides the beautiful effects to be had from permanent woody climbers, much beauty may be had from a judicious training of annual kinds. In looking over Mr. H. A. Dreer's catalogue, the great variety of ornamental vines offered suggested this paragraph. The old *Maurandia* for instance, can be worked up into many beautiful forms.

GRAFTED CONIFERÆ.—A writer in an English periodical refers to a prejudice against grafted Coniferæ, and shows that where they have not done well it is chiefly because the plants have been kept too long in pots. Where the roots are not suffered to coil they do just as well as seedlings; and this is our experience.

THE QUEEN GIVES A PARK.—A wealthy gentleman near Manchester, dying without a will, and having no known heirs, the property, under the English laws, went to the Queen. She, in turn, has donated it to the citizens as a public Park forever. It is twenty acres in extent, beautifully designed, and will be known as Newhouse Park.

THE GROUNDS OF MAJOR FREAS.—Our "Letter," noting the grounds of the editor of the *Telegraph*, written without his knowledge of our intentions, and after a stroll through by the writer "by himself," needs a slight correction. The gardener, we find, does not do the entire work, but in the spring of the year, in the busy season, is assisted by an extra hand. We were not desired to make the correction, but it is due to the facts that it should be made.

NEW OR RARE PLANTS.

SPIRÆA ARUNCUS.—Those who have traveled through the Alleghanies, and have noted how beautiful is this plant in its wild locations, must have sometimes wondered why such excellent material was seldom made to do tribute to the ornamentation of gardens. Though so old a plant, it appears to have been neglected in England, where they are ever alive to cultivate anything that may make a garden attractive. A recent *Gardener's Chronical* says:

"At a recent horticultural exhibition at Tiverton, a fine specimen of this vigorous and handsome perennial, with a grand head of bloom, lifted from the open ground, put into a pot, and made the central figure in a large group of plants furnished by Mr. Robert T. Veitch, nurseryman, Exeter, was a subject of wonderment among many of the Devonians. They thought it was something new because unaccustomed to see it. A neighbor who has great fondness for Spiræas grows Aruncus, Filipendula, palmata, Ulmaria, venusta, and others in pots, giving them about two inches of drainage, and in summer stands them out-of-doors in capacious saucers holding about one inch depth of water. In this way they do remarkably well, and carry fine and luxuriant heads of bloom. They are watered in the usual way daily; but as the cultivator has to go from home for some twelve hours, the plants are treated as above, in order that they should not suffer for the want of water on the surface. The

variegated form of S. Ulmaria is very fine and effective grown in pots in this way.

DWARF DAHLIAS.—Among the novelties the writer of this saw in the Paris markets a few years ago were Dwarf Dahlias. They were flowering freely in pots when not more than a foot high. The kind we then saw was pure white. They commenced to bloom very early in the season. Mr. Vick has found them to do well in this country. He has quite a collection of them, and gives the following as among the best.

Aurora, yellow, large.
Creedmoor, orange scarlet, sometimes tipped white.
Dawn, creamy ground, tipped with rose.
Dwarf Queen, purple, tipped with white.
Frauline Hettergot, light and rose, fine dwarf.
Gem of the Dwarfs, red, tipped with white.
Golden Bedder, fine yellow.
Goldfinder, golden yellow.
Leah, fine shade of orange, tinted with rose.
Méla Bartelles, very fine pink.
Mt. Blanc, clear white.
Pearl, pearly white.
Queen Victoria, canary yellow.
Rising Sun, large, intense scarlet.
Sambo, dark maroon.
Vulcan, deep red, large flower.

SCRAPS AND QUERIES

EUPATORIUMS.—A. B., says: "Your correspondent, Miss E. Hunter, has evidently misapprehended some points in her otherwise interesting note on Eupatoriums. The plant which she calls Eupatorium, is evidently Conoclinium, for the blue Eupatorium is a greenhouse plant, sometimes called Ageratum. The Conoclinium has somewhat the look of this Mexican plant, and Miss H. may be excused for coupling them, though it would be unpardonable in a good botanist not to see the distinction.

RED CEDAR.—Some one sends wrapped in a Denver paper, some branches of Juniperus Virginia. This, the Eastern Red Cedar, meets the Western Red Cedar, Juniperus occidentalis in the Rocky Mountains. They both grow together there.

HARDINESS OF LIGUSTRUM JAPONICUM.—C. A. D., New York, writes: "I notice in your pages some discussion respecting what is called Ligustrum japonicum. What plant is meant by this title? Is it Ligustrum ovalifolium, or something else? If Ligustrum ovalifolium is the plant that your correspondents are discuss-

ing, I beg to say that I have had a great deal of experience with it, leaving it uncovered in the coldest winters in the most bleak situations, and always finding it perfectly hardy."

[We have never seen the plants our correspondents are discussing, to know if they are

distinct from the old Chinese Privet, Ligustrum lucidum,—of which we suppose L. ovalifolium to be a variety. As with our correspondent the Chinese Privet is quite hardy about Philadelphia, we should be glad to see specimens of kinds under the names in dispute.—ED. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

This is the season when many things will require repotting. Many have a set time and season to do this; but some things require repotting at various seasons. The best time is just before they are about to make a new growth. Camellias, Azaleas, and many plants, for instance, start at this season. It is not necessary to repot as often as some think, especially if bloom, and not very large specimens, is chiefly wanted. If the pot is very full of roots, and the plant growing weak, it may need repotting.

In potting, see that some provision is made for allowing the water to readily escape, by putting broken crocks over the hole. Use soil rather dry, and ram it firmly about the old ball. Prefer pots only a little larger, to very large shifts, as less liable to accidents. Trim the plants in a little, if unshapely, to encourage the new growth where wanted.

Many who have but small houses and wish to have a variety, are troubled with valued plants becoming too large. To keep them low, as soon as the plant has matured its growth, cut it down as low as may be desired. As soon as it shows signs of breaking forth into a new growth, turn it out of the pot; shake or tear away the old ball of roots, and put it into a small pot as it can be got into, and when it grows again, and fills the pot with roots, repot again as before.

Sometimes the plants get "sick," which is known by unhealthy, yellow leaves. This is usually by over-watering, generating a gas, or as gardeners term it, a "sourness," destructive to the roots. The remedy is to cut the plant back a little, shake out the soil, and put the plant in a small pot with new soil, and place the plant in a house only moderately warm, and which is

naturally moist, so that the plant can live for a while without requiring much water. It will generally recover.

Window plants are as much appreciated at this season as at any time of the year. There are few things more beautiful than the old classes of roses—the Bourbon and China. We have seen some beauties in windows recently, and wonder they are not more grown. In another case we saw a handsome Chorozema cordata. Usually, Australian plants do not thrive in our climate, but this plant was simply plunged in partial shade in summer, rewarding the owner with its pretty brown and purple butterfly-like flowers all winter. This, and many other window flowers, are liable to suffer from the minute insect known as red spider. Very minute whitish green spots on the leaves usually indicate the insect's existence. It is best to lay the plants on their sides, in the open air, and treat them to a powerful syringing with strong soap-suds, and while still damp, sprinkle a little sulphur on them from a pepper box. Red spiders do not hanker much after sulphur. Sometimes window plants suffer from mildew, and sulphur is a good remedy for it also.

COMMUNICATIONS.

DATURA ARBOREA.

BY H. J. PURDY, SENECA FALLS, N. Y.!

I send you to-day by mail, a flower for name, together with some leaves from the plant. Please inform us through the MONTHLY what it is. The tree is a "soft hard-wooded" plant, and looks capable of attaining a large size were it furnished with pot room to grow. The blossom always opens first in the night, after

which it continues in bloom several days; it loads the air with fragrance during the night, while in the day time the fragrance disappears, but can be made perceptible by placing it in a very dark room. It blossomed about October 1st, for the first time in this season, when I sent you a plant, but which you never received. We have no plants for sale, but if you think it a novelty, we have two large plants; and would be very happy to present you one in the Spring.

[This is *Datura*, or as it is called *Brugmansia arborea*. It is a shrubby greenhouse plant, not uncommon. It is a capital thing for blooming out of doors in Summer time.—Ed. G. M.]

HEATING HOTHOUSES.

BY R. G. PARKER & CO., BOSTON, MASS.

Not knowing whether you accept items from unknown people, but thinking that perhaps what follows might interest some of your readers, we have ventured to mail it to you.

Our text, we would quote from Loudon's Encyclopedia: "Steam affords a simple and effectual method of heating hothouses." Also, "The disadvantages of steam, as a vehicle for conveying heat to hothouses, are few." We presume that the old gardeners and horticulturists generally will smile at our verdancy, but "the proof of the pudding," etc., is very apt.

We have about 10,000 square feet of glass, which is heated by a twenty-eight horse-power steam-boiler, of a cast iron, sectional pattern, called the "Exeter boiler," made at Exeter, N. H. We chose this as it seemed to be best adapted for our purpose, admitting of being easily made larger or smaller. Being somewhat afraid of heating wholly by steam, we laid 4-inch pipes, the same as for hot water, and connected with cast-iron heaters or boxes filled with steam pipes, which were connected with the boiler. The steam passes from the boiler through the pipes in the heaters and back to the boiler again. The 4-inch pipes are filled with water, as is also the space around the steam pipes in the heaters. Our fire is regulated by a steam damper, and as we never need carry a pressure of over five pounds of steam, there is no waste of coal and no danger of explosion. We obtain our heat much quicker than by the old method. We have also two houses heated wholly by steam, which works, so far as plants are concerned, full as well as those heated by the 4-inch hot-water pipes.

As to economy, we burned last season five

tons of coal to 1,000 square feet of glass, which is better by three tons than any have done in this vicinity. If any of your readers have done better than this, let us hear from them. Anybody interested wishing further information, we shall be happy to give all we know.

[Hints like these from practical experience, from any friend of horticulture, are always welcome.—Ed. G. M.]

EUPHORBIA.

BY MANSFIELD MILTON.

As winter-blooming plants, some of the species of this large genus of plants are very useful, and ought to get more attention from those requiring bright flowers during the dull season of the year. They are of easy culture and will repay the labor bestowed upon them to make them bloom abundantly. They are easily propagated by cuttings which if shifted on as they require, will make large plants in a short time. The soil I find most suitable for them is loam, and a good sprinkling of thoroughly decayed manure. Make it porous with a good addition of sand.

E. Jacquiniæflora is one of the best for producing flowers suitable for bouquets and other floral devices. It produces its flowers from the axils of the leaves, along the shoots of the previous year's growth, forming beautiful floral wreaths of an orange scarlet color. The plant can be trained into any shape desirable by attention to training and pinching off the shoots during this season of growth. Planted into a border, and trained up the back wall of a greenhouse, they produce an immense number of flowers during the season.

E. splendens is a rough looking plant, the branches being closely set with stout spines. The flowers are of a bright red color, and produced in clusters which are splendidly adapted for bouquet making. It is also at home when planted in a border, and trained up a trellis or back wall, producing large numbers of flowers.

SALVIA SPLENDENS CÆRULEA. (?)

BY PETER HENDERSON.

In response to the query of a correspondent, in the January number, asking for some information about the new blue *Salvia splendens* (?), I beg to report as follows: In the spring of 1879, a Boston florist sent me what he called a blue *Salvia splendens*. When it came it was easy to see at a glance that it was of an entirely dis-

tinct species from *S. splendens*. It was planted out in May, and by August it had got to a height of eight feet and nearly as much in diameter,—a coarse growing, weed-like plant, with an insignificant spike of blue flowers, far from "splendid."

I once was unfortunate enough in the earlier part of my business career, to send out just such another new *Salvia*. I happened to sell a plant to one of my best customers, who gave it as a valuable present to a New York friend, who owned a 7 x 9 city yard. It soon took complete possession. The city man thought his friend had played a practical joke on him, and he in turn emptied his vials of wrath on my head.

Another "blue" *Salvia splendens* was sent to us by a Western firm. This time we did get a variety of *Salvia splendens*, but not a blue, but still a great acquisition, the variety being a rich shade of crimson maroon, entirely distinct from anything we had before seen in *Salvia splendens*. The habit of growth and size of flower spike is identical with the well-known Scarlet Sage, and its crimson maroon color will make a fine contrast with that variety. This new *Salvia* is known as Mrs. Stevens, though it is well worthy of a distinguishing botanical term. I am not at all sanguine of ever seeing a variety of *S. splendens* of the color of *Salvia patens*, which is one of our best types of blue color in flowers.

EDITORIAL NOTES.

THE WALL-FLOWER.—We saw in a greenhouse recently an old fashioned wall-flower, and its grateful fragrance carried us to the long ago before ribbon beds, and masses of glare and glory came to us, all that we cared to ask from Flora. Queen Victoria, we were recently told has them grown by the hundreds especially for cutting for the delightful fragrance they give a dwelling room,—and Queen Victoria always had the reputation of being a sensible woman.

ROSE LAUREL.—This is the name under which the oleander goes in France. A great number of varieties are cultivated there.

TRADESCANTIA MULTICOLOR.—The common *Tradescantia zebrina* is well known, and highly appreciated. It is one of the best basket plants we have. A new variety, far more beautiful, under the above name, has appeared in Belgium gardens, and has recently been the subject of a colored plate in *Reveu de l' Horticulture Belge*.

TORNELIA FRAGRANS.—Philadelphians are familiar with a singular Aroid with excellent eating fruit, and leaves all "riddled with holes," as *Philodendron pertuosum*. When reading English gardening works they will recognize it as *Monstera deliciosa*. The *California Horticulturist* now comes to hand with an illustration as *Tornelia fragrans*.

DESIGNS OF CUT FLOWERS.—These are often made now so that at the end of a party the main pieces can be broken up and distributed among the guests. This calls for the whole design to be made up of small bouquets, or still better, little baskets of flowers. We notice that some horticultural societies offer premiums for designs especially to be made in this way.

FIRES IN GREENHOUSES.—We have often told our readers, as a lesson learned from careful experiment, that wood will take flame; not only without actual contact with flame but also by the long continued accumulation of a comparatively low temperature. We have seen wood when connected with a flue, take fire fifty feet from a furnace, and we have known a wooden frame enclosing a hot air flue, in which the thermometer did not rise over 75° at the time of the enclosure, take fire three years afterwards, though perfectly safe at the time of the enclosure. Many years ago, by some accident the right man got into the right place as Fire Marshal of Philadelphia, Mr. Blackburn. He had keen powers of observation, and in one of his annual reports he clearly showed that a large number of fires in that city originated from the steady accumulation of heat at low temperatures, and often at long distances from the source of heat. We have recurred to this so often that few persons probably, who have read the *GARDENER'S MONTHLY* in the past, have been burnt down by "defective flues." However, it is well once in a while to renew these old topics, and it may be useful to note what the *American Manufacturer* says: "At the Crescent Steel Works in this city a steam pipe 2½ inches in diameter, carrying from 90 to 100 pounds pressure, was laid under ground about three years ago, encased in common pine boards about one inch thick. A few days since occasion was had to dig up the pipe, and the whole length of the wooden drain was found to be charred and apparently burnt about three fourths of the thickness of the wood, the other fourth being partially rotted. The whole inside of the drain was

turned to charcoal, with here and there spots of white ashes, showing that ignition had actually taken place. It seems probable that if the casing had not been excluded from the air by the earth covering it, it would have blazed and been entirely consumed. It is generally believed that a steam pipe cannot set fire to wood, but this case seems to prove the contrary, and it may explain the origin of many mysterious fires."

ORNAMENTAL GRASSES.—These are now very numerous, but one of the easiest raised from seed, and a very pretty one, even when the hosts of new candidates come before us, is the old Quaking-grass, *Briza maxima* and *Briza minor*.

FLORAL HORSE-SHOES.—There is hardly any telling where floral "taste" will bring up. Just now it is the thing to have horse-shoe designs everywhere. Cloven hoofs will be perhaps the next thing.

EVERLASTING FLOWERS.—Many of the composite flowers have dry involucre, which retain their form and appearance long after they have been cut, and enter largely into winter ornamentation of parlors and dwelling-houses generally. There is now quite a good bit of them which may be grown as annuals from seed sown in the spring. In this connection may be named the *Acroclinium roseum*, *Helichrysum* of many species, *Helipterum Sandfordi*, *Waitzia aurea*, *Xeranthemum annuum*, and varieties *Rhodanthe Manglesii* and *Ammobium alatum*.

ALYSSUM AS A BASKET PLANT.—For baskets in rather open sunny places, Mr. Vick finds the Sweet Alyssum an excellent thing. Our readers probably know that there is now a double variety under culture. It is much superior to the old kind. It has to be raised from cuttings, as it rarely if ever seeds.

CHRYSANTHEMUMS.—It was thought that these had about reached the climax of improvement, but by some new kinds we saw recently in the grounds of W. K. Harris, of Philadelphia, we learned that new beauty comes even here.

SCRAPS AND QUERIES.

ORIGIN OF FUCHSIA EARL OF BEACONSFIELD.—C. E. P., asks: "Will some of the readers of the MONTHLY please inform me who originated Fuchsia Earl of Beaconsfield; in what year was it raised? And between what varie-

ties is it a hybrid? I think that it is one of the best and most free flowering of the new varieties. It is a vigorous growing plant."

FLOWERING OF THE CATALONIAN JASMINE.—A "Sub." says: "Is it intended that the Catalonian Jasmine should bloom in Winter? If so, will you please tell me in your paper what course to pursue. I have tried in vain to make one I have flower in Winter."

[It is one of the most popular plants with florists who grow for winter flowers. Their plan is to cut in the plants pretty well in spring time, and then to plant out in the open ground. They are carefully lifted and repotted in September, when they flower delightfully all Winter long.—Ed. G. M.]

ACHYRANTHUS EMERSONII.—W. T. Bell writes: "In reply to 'N,' who asks, in January number for a description of *Achyranthus Emersonii*, I would say that in habit and the shape of its leaves, it is similar to *A. Lindeni*; but the leaves are lighter in color, and the stem and branches a beautiful pink, as in well grown plants of *A. Gilsoni*, or *Gibsoni*,—which is correct? I consider *Emersonii* so superior to *Lindenii*, that I have entirely discarded the latter variety. *A. Hoveyi*, so far as I have tested it, is not so good as *Gilsoni*, which it resembles."

NAMES OF PLANTS.—Mrs. S. E. P., says: "Enclosed please find two plants to be named, one of them I found in a collection of ferns, unnamed, and it resembles a miniature 'Arbor vitæ.' The other is a greenhouse shrub. The flowers are pea-shaped, canary-yellow, and are produced upon the ends of stiff twig shorts. The original plant was purchased at the Centennial Exhibition as a rare thing. Lastly, how can I flower a 'Mandevilla.' I have a plant grown from seed, three years old. It has a tremendous growth every season, but has never blossomed. Please inform me through the columns of the GARDENER'S MONTHLY, and oblige."

[The plant well characterized as a "miniature arbor vitæ" is *Selaginella Willdenovii*. The other is the pretty *Genista Canariensis*, an old but not common greenhouse plant. It is very pretty and easily grown.—Ed. G. M.]

DISEASED CYCLAMENS.—A Wilmington, Delaware, correspondent, writes: "You would confer a favor upon me, if you could enlighten me on the following subject, either through the

GARDENER'S MONTHLY or otherwise. I received through a friend in England, in February last, a packet of Cyclamen seed, procured from a reliable firm, viz: Veitch & Son, of London. I sowed the seed at once, and I believe every seed germinated and grew. I potted and repotted as they required shifting, till they occupied five-inch pots, in which I intended and expected them to bloom nicely, as the majority of them had formed quite large corms, but all through their growth the foliage more or less on all of them had a crippled appearance, which I hoped they would outgrow as they became larger and stronger, but there is no improvement in them in that respect, and the flowers which are now being produced, are imperfect and worthless on account of their deformity. I never experienced any difficulty of the kind before in Cyclamen growing, neither has any

disease of the kind come under my observation, and therefore would be glad to be enlightened respecting it. I would add, the root action appears to be all right, potted in soil, as I have always found satisfactory in the culture of the Cyclamen, viz: half loam, and half leaf mould and sand in equal parts, with a moderate amount of decomposed manure, covering the drainage. I have got my old Cyclamen corms potted in the same mixture of soil, and they are perfectly healthy, although six and seven years old. There are a good variety of colors in the Cyclamens alluded to, but the trouble is they produce deformed flowers. I enclose a few leaves and flowers complained of for your inspection."

[The Cyclamen is subject to what is known as the *Verbena rust*, and this is what ails your leaves.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

At no time within our recollection has fruit-growing been on a more substantial footing than now. In amateur fruit growing it is well understood that the kinds which may be best for a market gardener, are not the kinds for him; and indeed the whole method of procedure in growing the fruits is very different from that which the market man pursues. It is a great gain that this distinction has been generally perceived. And there is another gain which is to the advantage of the market grower. About the time the GARDENER'S MONTHLY came on the stage, the teaching was rather general that anybody could make money at fruit growing. Hundreds of people were induced to embark in the business, who hardly knew a peach tree from a gooseberry bush, and who were ignorant of the very first principles of business success. It was thought a good thing by short-sighted people that money was being invested in this way as tending to clean out extensive stocks of trees. Things seemed active. But the ignoramuses had to go down, and those who gloried in the early depletion of stock, found that in the downfall of their customers they were swamped. When the re-

action came, nurserymen were caught with immense stocks and no buyers, and the prices of trees fell below cost, and all had to suffer. But the weak fruit growers are now mainly gone. Those only remain who know just what they are doing. The weaker nurserymen have also failed, and the "surplus" stock is about used up. The business of those who supply fruit trees will be healthy, and those who plant will reap success in what they do. Altogether the outlook is much more encouraging for permanent success in fruit growing than we have known it for a long time.

Passing to practical matters of immediate import it may be noted that all fruit trees like a rather dry, rich soil. On a cold, clayey bottom, diseases are usually frequent. Do not plant deep; cut off tap roots, and do all you can to encourage surface fibres. Surface manuring is the best way of doing this after the tree is planted. Do not allow anything to grow vigorously around your trees the first year of planting, nor allow the soil to become hard or dry. Let trees branch low, and prune a little at transplanting.

Pruning of fruit trees, when required, should be proceeded with at favorable opportunities. We write *when required*, for in our climate more

injury is done by the knife than by the neglect to use it. Goosberries, for instance, are usually ruined by pruning. In Europe it is customary to thin out the centre well to "let in the sun and air." Here it is the sun and air that ruin them, by inviting mildew; and so the more shoots the better. Our country farmers are the best gooseberry growers, where weeds run riot, and grass and gooseberries effect a close companionship. Wherever, in fact, the gooseberry can find a cool corner well shaded from the sun, and with a soil, which is never wet nor yet by any means dry, there will gooseberries be produced unto you. The English kinds mildew so universally as to be almost gone out of cultivation south of the St. Lawrence. Nor, indeed, is it to be so much regretted, since the improved seedlings of large size and fine quality, raised from the hardier American species, are becoming known, and their merits appreciated by growers.

The rule in pruning grape-vines, is to shorten the shoots in proportion to their strength; but if the advice we have given in former Summer hints has been attended to, there will be little disproportion in this matter, as Summer pinching of the strong shoots has equalized the strength of the vine. Those who are following any particular system will, of course prune according to the rules comprising such system. As a general rule we can only say, excellent grapes can be had by any system of pruning; for the only object of pruning in any case is to get strong shoots to push where they may be desired, or to increase with the increased vigor of the shoot, which pruning supposes will follow the act, increased size in the fruit it bears.

In managing the vegetable garden the highest excellence should be aimed at. This is the chief source of pleasure in a garden. If one can take no pleasure in his garden,—if the watching of the beautiful processes of nature in furnishing him food—and the many lessons they teach him, which he in a thousand ways can so pleasurably and profitably apply, have no charms and attractions for him, he had better give up gardening; for assuredly, in most cases,—even to 99 in a 100 instances,—the market gardener will bring the vegetables to his own door cheaper than he can grow them. Amateur gardening should primarily be pursued for the lessons it teaches, and the pleasure it affords; when it ceases to do this it should be abandoned. Of course mere farm gardening, or gardening as a branch of market business must be pursued very differently, and

what would be perfectly right and proper in the amateurs' garden, will be utterly out of place here. But there are some general hints that will be applicable to both classes of growers, which we may give here.

In the Middle States the work for February will, for the most part, consist of preparations for future operations, and particularly for dealing with the manure question. All those kinds that are grown for their leaves or stems require an abundance of nitrogenous manures; and it is useless to attempt vegetable gardening without it. To this class belong cabbage, lettuce, spinach, etc. The other class, which is grown principally for its seeds or pods, as beans, peas, etc., does not require much manure of this character; in fact they are injured by it. It causes too great a growth of stem and leaf, and the earliness—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone-dust, etc., are much better for them. For vegetables requiring rich stable manure, it is better that they have it well rotted and decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung: though to the smell no trace of "ammonia" remains in it.

One of our most interesting parts of a vegetable garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month soon absorbs all the heat the hot-bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees or mats; and the glass should always be covered with mats at night. Tomatoes, egg-plants, peppers and cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for cauliflower, lettuce, beets, celery and Early York Cabbage, a little of which may be sown about the end of the month for the earliest crop. The cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

In the open air, should the weather prove favorable, as it often is about the end of the month, peas and potatoes may be planted. Frost seldom gets deep enough in new dug ground to injure them after this date.

In the more southern States, the gardener will

lose no time in getting in his potatoes, beets, carrots, parsnips, peas, spinach, radishes, lettuce, onions, and salisfy. These should be the first crops put in after the season breaks up for good. The earlier they are in the better. Asparagus, rhubarb and horse-radish beds may now be made. Asparagus roots are generally planted too thickly to produce fine shoots,—they starve one another. A bed five feet wide should have three rows, and the plants set about eight inches apart. A deep soil is very important, as the succulent stems require every chance they can get for obtaining moisture. About four inches beneath the soil is sufficient to plant them. Rhubarb also requires a deep, rich and moist soil. Horse-radish beds are best made by taking pieces of strong roots, about one inch long, and making a hole about a foot or fifteen inches deep, with a dibble, and dropping the piece to the bottom of the hole; a clean, straight root will then rise up through the soil. Crowns or eyes are better than pieces of roots,—where they can be had—and a rich clayey soil better than a light, sandy one.

About the middle or end of the month, or still later in the North,—say the middle of March,—celery and late cabbage may be sown. Here, we usually sow the second week in March.

In the Northern States, broccoli, and cauliflower when sown in March, as recommended, do not head early enough in Fall. It should be sown about the time of Early York Cabbage, in the hot-bed, during this month.

COMMUNICATIONS.

JAPAN PERSIMMONS.

BY H. F. HILLENMEYER, LEXINGTON, KY.

This new fruit has attracted a great deal of attention lately, but those interested in the sale of the trees, have been rather reticent as to their hardiness. Glowing descriptions by Japan travelers have been freely circulated, but the exact latitude in which this new apple from the garden of Hesperides might be successfully grown, has been largely left to the conjecture of sanguine planters. I confess to a weakness for big persimmons, and fearing that my precious fruit trees "of the Gods" might be nipped by untimely frost, like unto an unfledged Bartlett, I thought it prudent to shelter them in this their tender infancy. Napoleon marched up the Alps, and then down again, as was the fate

of a load of empty flour barrels, which in kindness of heart I trundled to my precious pets, well knowing that in this country the breezes of winter are not especially tempered to the shorn lamb. But, alas, the same frost that had been fatal to my forgotten figs, had likewise frozen to the ground these "God-like" treasures.

Slowly and sadly we trundled them home,—the flour barrels,—repeating vanity of vanities, and solemnly reflecting that like unto the bearded grain and tender flower that fall by the reapers blade, so may likewise the Bartlett and Persimmon,—the Persimmon mostly.

EDITORIAL NOTES.

VARIOUS GARDENS.—When people read in these days of the Kinder-Garten, they understand tolerably well what kind of garden it is. But we were not so sure about the "Kitchen Garden" which is the momentary craze with the young ladies of nothing-to-do who live about Boston and New York. The old name "Kitchen Garden" has a very familiar sound, but it proves to be "girls in the kitchen" and nothing more. In the direct English of the olden time, it would be "cooking," or "cookery."

SCRAPING THE BARK OF TREES.—There are still discussions as to the value of scraping off the loose, dead bark of trees. Few of those who speak against it seem to have had practical experience in the case. They argue that it is "nature's plan of protecting trees from cold." Those who have tried scraping off this dead bark, and washing the stems do not talk this way. It is an excellent practice to produce good trees.

PATENT FRUITS.—A correspondent of the *Prairie Farmer* tells that the Editor of the *GARDENER'S MONTHLY* declines all discussion on this subject. The exact truth is that we simply declined to insert a letter from that correspondent for reasons satisfactory to ourselves. We have no room for three or four pages a month,—and to be continued to all eternity.

FRUITS IN POTS.—The pot-culture of fruits is still very popular in England. Peaches, Nectarines, Apricots, Plums and even Pears are kept in large pots or tubs, and in cheap glass-houses. They can raise many of these in the open air,—but are more certain and have better fruit under glass.

ROOT PRUNING.—As a general rule fruit trees do not grow more rank than they ought

to do. But if it be thought they are longer in coming into bearing, root-prune them. The best way to do this is to dig a trench two feet deep around the tree, about six feet from the trunk, filling in the earth again when finished. This is the best plan of root pruning.

THE PEANUT.—Our Peanut plays no mean part in the oil trade of Europe, judging by the following, which we find in the *Gardeners' Chronicle*. Our readers mostly know that the Peanut is *Arachis hypogæa*.

"Large quantities of oil-seeds, such as *Arachis hypogæa*, *Sesamum indicum*, *Elæis guineensis*, etc., find their way, it seems, to Nantes, for the manufacture of a household soap known as 'Marseilles soap,' from the fact of its first being manufactured in that city. This manufacture was started about 1850 by a firm who have since been most successful. At first they imported direct the raw materials with which to supply their factory, but branch houses have since been established to purchase the oil-seeds and oils direct from the natives: on the West Coast of Africa at Sawpit, Tamalamba and Marambo, and also at Coromandel, from whence the merchandise is shipped to Nantes, principally in vessels belonging to the firm. The productions of these works find their way in quantities into the various departments of France. The oil-cakes are sold principally to the Departments of the North of France, to the French colonies and to England."

TOMATOES IN ENGLAND.—These must be getting into some favor at length in England,—when new English varieties are being advertised, Nisbet's Victoria is among the announcements of the season. The fruit is represented to be about the size of a good sized plum.

DR. WYLIE'S GRAPES.—These well known and excellent hybrids have been placed in the hands of Ed. J. Evans & Co., of York, Pa, for propagation, with the view sometime of offering them for sale for the benefit of the late Dr. Wylie's family.

THE BEST ENGLISH STRAWBERRIES.—In our country "the best kind ever raised" of Strawberries appear every year. It is remarkable that in England, the country above all favorable to fine Strawberries, they seem to have found perfection long ago. The *Gardeners' Magazine* gives the following as the best at present: Vicountess Hericart de Thury, Sir Joseph Paxton, President,

British Queen, Elton Pine and Eleanor. These are mostly a quarter of a century old. How would a list of our kinds do made up of that period,—say Burr's Pine, Hovey's Seedling, Longworth's Prolific, Peabody's Seedling, and so forth?

ALMOND CULTURE.—California has succeeded so well in soft-shell almond culture, that the European trade with America begins to feel the pressure.

THE PRENTISS GRAPE.—This fine white grape was exhibited at Rochester as it grew on the vine. A branch twenty inches long, had seven canes, on which were nineteen clusters weighing seven pounds.

APPLE FOR SOUTH OF BALTIMORE.—An *American Farmer* correspondent names the Limbertwig as one of the best varieties for planting south of Baltimore.

PHYLLOXERA IN CALIFORNIA.—Since this insect pest has found its way to California, the grape growers are following the French in grafting their plants on the varieties of the riparia and cordifolia classes, the roots of which resist the insects to a great extent. Of course our readers know that the European race of grapes furnish the varieties commonly grown in California.

GRAFTING THE GRAPE.—The *American Wine and Grape Grower*—a recent venture, and devoted wholly to the subject of grape growing with all that it implies—says well, that in grafting the grape to resist Phylloxera, the graft must be above ground, or the graft will take root, and its final condition becomes as bad as the first.

THE FOSTER PEACH.—The *Country Gentleman* says this is often replaced by the Early and Late Crawford, but it is not the same; it is sweeter and higher colored.

A LARGE CUCUMBER.—A correspondent sends in the following from *Reynold's Newspaper* of London:

"Sir C. W. Oakley, Baronet, of Frittenden, has just grown a cucumber five feet long and a foot thick. Madame Tussaud will exhibit the dream of the man who eats it for supper in the Chamber of Horrors."

He asks "What do you think of it?" We do not see why we should be asked this question, for the thing is big enough to speak for itself.

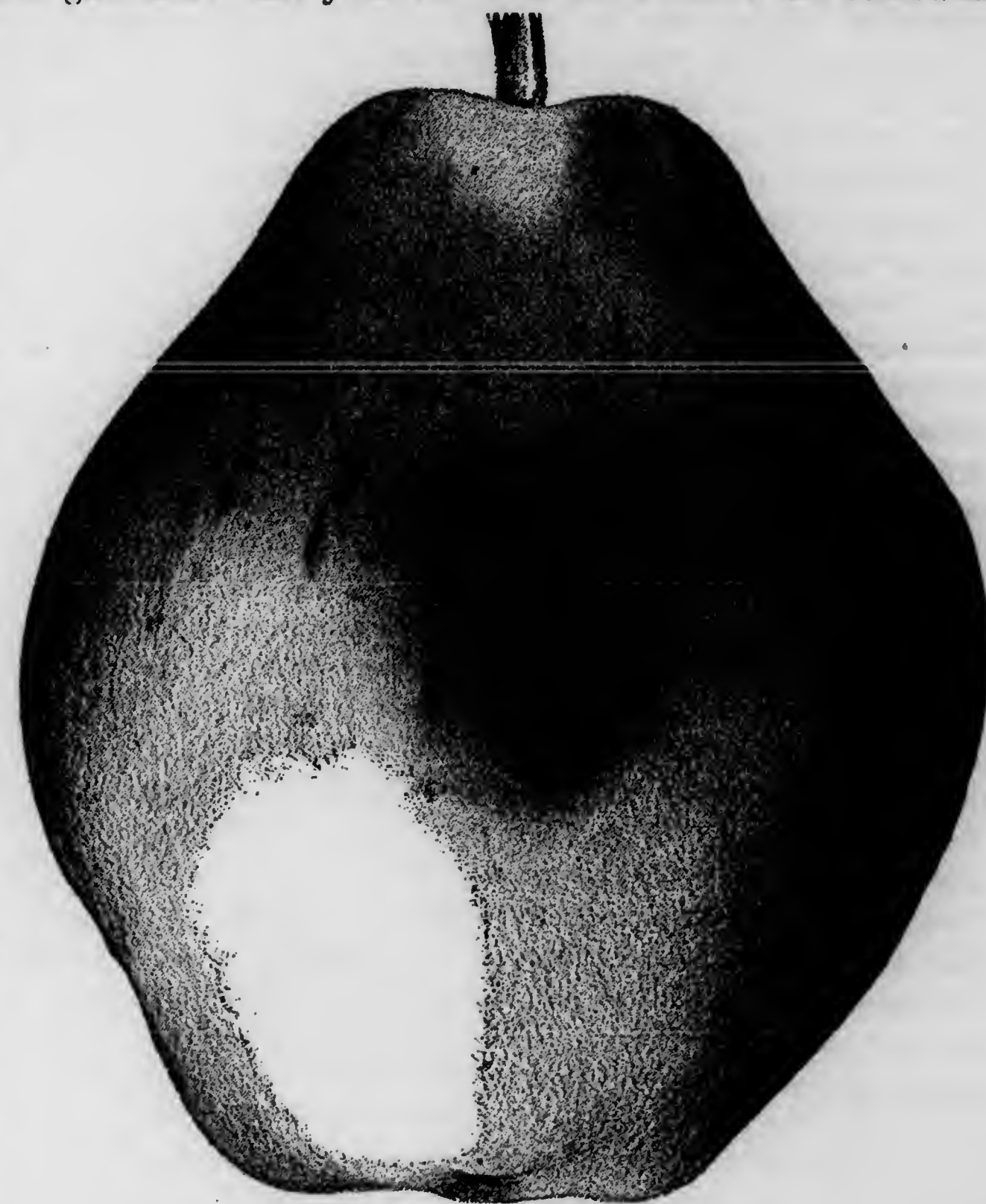
WINTER TOMATOES.—The forcing-houses at Senator Cameron's, at Lochiel, near Harrisburg, have their usual Winter's attractions in Cucumbers, Tomatoes, etc. On the 8th of January a visitor informs us at least a bushel of ripe Tomatoes could be had at one picking, not one of the fruit being less than ten inches round. The flavor of these forced tomatoes is singularly delicate, and the flesh mealy. It is amazing that more of our wealthy people do not have these luxuries. Of course it takes skilled gardeners like Mr. John Paget to do the thing cheaply and well,—but such good gardeners are generally to be had if the proper steps are taken towards finding them.

THE KIEFFER PEAR.—A contemporary asks what evidence there is that this is a hybrid between the Chinese Sand Pear, and the ordinary garden variety? We like to have such questions, for the guesses about hybrid fruits generally have but slender ground to rest on. It would be much better if such plain questions were more often put. In this case it must be admitted that the evidence is wholly circumstantial. The Sand Pear has been raised from seed about Philadelphia for a great number of years, and as far as we know never varied much in its character which is that of a large oval fruit, with the color, form, and tough leathery texture of a quince. Now, among Mr. Kieffer's seedlings, with the leaves and general habit, as all the seedlings have, of the Sand Pear, it produces a fruit with the form of the annexed cut, the rich glowing red cheek of a first class Flemish Beauty, the delicious perfume of the Sand Pear, and the rich melting flesh of our best Garden Pears. Now it may possibly be that this is one of those sports of nature which sometimes occur, and which in the past resulted in the production of a Nectarine from a Peach. It may be a question of great scientific interest to decide whether it is a sport or a hybrid. One thing is certain, it is just as different from the ordinary Sand Pear, as if it were positively known to be a hybrid, so that practically the question

is one of little moment. As a mere matter of opinion, seeing how closely the original parent tree and the ordinary Garden Pears were intertwined we incline to the belief that it is a hybrid.

SCRAPS AND QUERIES.

YELLOWS IN THE PEACH.—A Michigan friend says: "You will see by the proceedings of the Washtenaw County Pomological Society, that your views on the Yellows are somewhat



THE KIEFFER PEAR.

misunderstood as I think. I send you the *Michigan Farmer* of the 9th inst., containing their proceedings. If you could find time to write out what you think on the subject, or what you have found out, it would be doing our fruit interest some service and put an end to much useless talk, a sort of epidemic from which editors suffer a great deal."

[It seems scarcely possible that regular readers of the *GARDENER'S MONTHLY* can misunderstand the editor's views of the disease known as "yellows" in the peach, and it is useless to follow

up the misconceptions of those who only get their notions of his views at second-hand. If anything more for our readers be necessary, we might say that if any one examines a peach-tree in the early stages of the yellows, he will find, by the aid of a microscope, a cobwebby fungus on the roots, which feeds on and destroys the ends of the growing rootlets. He may take if he chooses a shovelfull of this fungus-saturated soil, and place it to the roots of healthy peach-trees, and the following year these trees will be diseased. There can be no doubt from these experiments that this fungus, whatever it be, is the cause of the disease. What the name and history of the fungus is, has never been definitely ascertained. Prof. Farlow has had the mycelium in earth, watching its development, but has not so far been able to determine its exact character. We are inclined to believe it is an Agaric, but our only reason for this belief is that a small brown mushroom usually appears in certain seasons under the trees infested at the roots with the fungus. This, of course, is but a probability, and will not satisfy exact science. Further, just how the fungus works through the system is not positively ascertained. Prof. Thomas Taylor, formerly of the Department of Agriculture at Washington, has found what he believes to be a minute fungus, working through the structure in connection with the yellows; but whether this has any connection with the root-fungus before noted is not clear. Then there is evidence which we think undoubted, that a peach-stone from a diseased tree, dead leaves from a diseased tree, the use of a knife which has been at work on a diseased tree, as well as the shovelfull of earth we have already referred to, from the roots of a fungus-infested tree, will spread the disease; and all this is in exact accord with what we know of minute fungoid life, and of nothing else. Therefore, while we absolutely know from actual experiment, that the root-fungus produces the yellows, whatever its name and history may be, all the facts connected with the development of the disease show the probable connection with the original root attack.

All that we see against this in the discussion referred to, and others that have occurred in Michigan lately, is that this "theory" is "perfect nonsense," and one gentleman reports that he "examined the roots of a peach-tree with the yellows, but he could not find any fungus." No details are given. He may have had an idea of finding a "fungus" as big as a puff-ball for any-

thing we know. It seems to us that such "opinions" are not worth spoiling the paper they are printed on, and it is no wonder our correspondent suggests that editors suffer a good deal in deciding what to do with them.—ED. G. M.]

APPLES AND PEARS IN EDEN.—A correspondent says: "I copy the following from *American Punch* for December: 'The GARDENER'S MONTHLY has an article on the cause and cure of pear-blight. The discussion on the apple-blight is left, with great reason, to the attention of religious journals and the pulpit.'"

[We suppose this is a reference to that celebrated apple which so badly blighted our first parents, but then A. P. may remember that a "pair" was blighted at the same time.—ED. G. M.]

IMPROVED LEMONS.—Geo. C. Swan, of San Diego, California, sends a sample of a seedling lemon which he names the "Olivia." It is very juicy, and thin-skinned, and these are good points in a lemon. Large quantities of California lemons now appear in the Philadelphia markets from Southern California, and their improvement becomes a good object.

SELECTING GRAFTS OF FRUIT TREES.—J. F., Keswick Depot, Albemarle Co., Va., writes:

"Will you be so kind as to favor me with your opinion as to the value of grafts or scions taken from the superfluous shoots and twigs of nursery stock, pears and apples, from one to two years old, from the graft, in comparison with those taken from the extremities of the branches (midway the trees) of thrifty bearing varieties. What is the difference in time, if any, in beginning to bear, and in bearing qualities of trees raised from these different buds or scions?"

[Some of the questions mentioned here, are much like the "Which is the best hotel?" among travelers. There are differences, but after you have decided "the best," the other one may be good enough for all general purposes. Now, a scion taken from healthy young nursery trees we should regard as good enough for anybody. If we were to plant an orchard, it would probably not enter our heads to make it a question. Yet if it is to be an abstract question which may require some nice determination, we should certainly decide in favor of the larger, healthy, bearing trees. As to the time of the young trees coming into bearing, all other things being exactly equal, the scions from older trees would probably bear first. But the chances of "all other things being equal," are not good, and we fancy different people would have different experiences.—ED. G. M.]

FORESTRY.

COMMUNICATIONS.

PINE-TREE INSECTS.

BY WM. SAUNDERS, LONDON, ONTARIO.

The following, from the annual address of the President of the Entomological Society of Ontario, is from the *Canadian Entomologist*: The City of Ottawa being one of the great centres of our lumbering interest, it seems fitting that I should on this occasion call your particular attention to some of those insects most injurious to our pine forests. The losses occasioned by the destructive work of borers in pine trees both before and after they are cut are unfortunately too well known to those interested in the lumber trade, although the sufferers may not be familiar with the life histories of their enemies so as to be able to recognize them in the various stages of their existence. The lumberman suffers from the work of a number of destructive species, nearly all of which inflict their greatest injuries during the larval stage of their existence.

There are three families of beetles in which are included the greater number of our enemies in this department. I allude to the longicorns or long-horned beetles, *Cerambycidae*; the serricorn or saw-horn beetles, *Buprestidae*, and the cylindrical bark beetles, *Scolytidae*. To go over this long series in detail would weary you. A brief sketch of the life history of a single example in each family will serve as representatives of the whole.

One of the most destructive of the species included in the *Cerambycidae* is a large grey beetle with very long horns, known to entomologists under the name of *Monohammus confusus*, and popularly in this district as the "Ottawa Cow." Where trees have become diseased from any cause, or where a fire has ravaged a pine forest, and scorched and partially destroyed the timber, or where logs after being cut have been allowed to remain a season in the woods or in the mill yard—there these insects gather and soon multiply to a prodigious extent. The mature insect is over an inch in length; the antennae of the male reaches the extraordinary length of from two to three inches, while those

of the female are shorter. The female lays her eggs in the crevices of the bark, where the larvae when hatched eat their way into the wood, burrowing extensive galleries through the solid timber; when mature they are large, white, almost cylindrical, footless grubs. They pass their chrysalis stage within their burrows, and the perfect insect on its escape eats its way out through the bark. There are about a dozen species in this family known to be destructive to pine.

Most of the insects belonging to the family *Buprestidae* may be recognized by their brilliant metallic colors; they have very short antennae which are notched on one side like the teeth of a saw, and are often hidden from view by being borne under the thorax. *Chalcophora liberta* is one of the most destructive to pine trees, and its history is very similar to that of the long-horned beetle just described, but the larva is of a different form, and has the anterior segments or rings of the body very large, reminding one of the appearance of a tadpole. The perfect insect is about three-quarters of an inch long, of a brassy or coppery hue, with the thorax and wing-covers deeply furrowed by irregular longitudinal depressions. Dr. Fitch enumerates twelve species belonging to this family which are known to be injurious to pine. Additional information in reference to these beetles may be found in an article contained in the last annual report of our Society, by Mr. J. Fletcher, of Ottawa.

The cylindrical bark beetles, *Scolytidae*, are also a numerous family, eight species of which are known to attack pine. The boring *Hylurgus*, *Hylurgus terebrans*, is probably one of the commonest. This beetle is about a quarter of an inch long, of a chestnut red color, thinly clothed with yellowish hairs, and is found during the month of May. The larva, which is a small yellowish white footless grub, bores winding passages in every direction in the inner layers of the bark of the tree, and also through the outer surface of the wood.

In some parts of our Province pines are greatly injured and sometimes killed by the attacks of a woolly bark louse, which covers

parts of the trunk and branches with a white cottony secretion, under the protection of which myriads of tiny lice live, puncturing the bark with their sharp beaks and exhausting the trees by feeding upon the sap.

While we are mainly interested in the preservation of our mature forests, the future of our country demands that we shall not overlook the young growth on which the lumber supply fifty or a hundred years hence must largely depend, and which it should be the policy of our rulers to protect as far as possible. Most of the governments of Europe are now fully alive to the importance of this matter, and are annually spending large sums of money in establishing young forests. Two years ago I called your attention to an insect then recently discovered by Prof. A. R. Grote, of Buffalo, which was greatly injuring the terminal shoots of both the white and red pines in Western New York; it was the larva of a small moth, *Nephoteryx Zimmermani*, which fed under the bark, causing a free exudation of resinous matter from the wounds it made, followed usually by the death of the twigs infested. Since then it has been found over a much wider area than was at first anticipated, and I have no doubt but that it is to-day materially retarding the growth of young pine trees in many portions of our Province.

At the recent meeting of the Entomological Club of the American Association for the Advancement of Science (where our Society was represented by your President and Vice-President), Mr. S. H. Scudder, of Boston, submitted some observations on another lepidopterous insect which is injuring the young pines growing on the Island of Nantucket. It is a species of *Retinia* closely allied to *Retinia duplana* of Europe. The moth lays her eggs near the tips of the twigs, down which the young larvæ burrow, killing them outright, and thus stunting and almost destroying the trees. Prof. Comstock, of Washington, also referred to two other species of *Retinia* which he had observed injuring the pine trees in that city.

In addition to all these there are a score or two of species of insects which are known to devour the leaves of the pines, damaging them in some instances very much. From the facts enumerated it is evident that we are suffering serious loss in all our lumbering districts from the silent workings of these insidious foes, and since in some measure to be forewarned is to be forearmed, I desire to call the special atten-

tion of those immediately concerned in the prosperity, present and future, of the lumbering interests of our country, to this important subject. Unfortunately it does not as yet seem to be within the power of man to do much directly towards restricting the operations of these enemies to our forests; yet this should not deter us from studying their habits and history, since an intimate acquaintance with these may result much more to our advantage than we now anticipate. A few trees, such as a belt, or a group planted for shelter or ornament, may be protected from the leaf and twig destroyers by syringing with a mixture of Paris Green and water in the proportion of a teaspoonful to a pail of water, and the bark lice may be killed by the use of alkaline washes applied with a brush or broom, and a timely application of the same will prevent the operations of the borers; but it is scarcely possible that such remedies can ever be applied over extended areas of forest. It is, however, gratifying to know that in addition to the numbers devoured by our insectivorous birds, that almost every injurious species is in turn attacked to a greater or less extent by insect parasites of the most active habits, who seek out and destroy these pests with ceaseless diligence; were it not for these friendly insects the destructive species would be far more numerous individually than they now are.

EDITORIAL NOTES

DURABILITY OF TIMBER.—Questions of the durability of timber require care in answering. Almost any timber will last forever, "almost," if kept perfectly dry, or always wet. In all countries are old buildings with all sorts of woods, that have kept their timbers fresh for a thousand years. It is the transition from moist to dry, which encourages fungoid growth that destroys timber. When, therefore, one man tells us that he had a post of some tree which was just as good for — years as the day it was put in, and another finds it rotten in half the time, we see how both statements may be perfectly true. There are some timbers that will resist these alternations of circumstances better than others, and this is what most people are after.

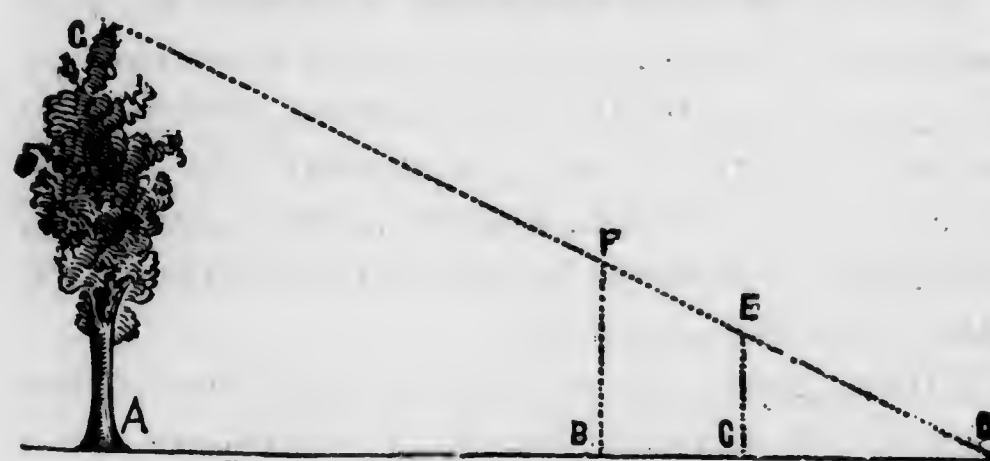
DURABILITY OF WOOD.—The *Scientific American* says: "A correspondent sends a transverse section of Osage orange wood cut from a stick

which, to his certain knowledge, had been lying for twelve years partly covered with earth in an old meadow. The heart wood is in perfect preservation. This timber, he says, is a rapid grower, and seems to be nearly imperishable in the ground; and he suggests that it would pay railroad companies to cultivate it for ties. Osage timber large enough for narrow gauge roads would grow, he thinks, in from twelve to fifteen years from planting. Whether it would hold spikes well does not appear."

[But this does not tell us how long the same timber would last as railroad ties. It makes a great difference whether a piece of wood is wholly or partially covered. Cedar is dug up in New Jersey, and has been dug up in Illinois, that has been buried before the historic period, and found to be just as sound as if but recently living. So, near London, recently, oak logs have been dug up that were used for corduroy roads by the Romans near two thousand years ago, perfectly sound. It is the heat of Summer and the subsequent moist period that worries the ties, and we want to know how they will act under these circumstances.—ED. G. M.]

MEASURING THE HEIGHT OF TREES.—Just now much space is given to this subject by our contemporaries,—and it may serve a useful purpose to give here a plan which was published by the writer of this many years ago. It is one of those cases where old things are as good as new,—for geometrical rules are good for all times.

A very easy, simple and correct mode of measuring the height of trees is as follows:



Measure any distance from the tree you choose, say 90 feet, and plant a perpendicular stake *B F* in the ground, of any height, say 5 feet; then at any distance, say 10 feet, from this stake, and on the opposite side of it from the tree, plant another perpendicular stake *C E*, which must be driven into the ground until the points *E F G* are brought into a range. Measure the heights

of each of the stakes *B F* and *C E*, and find the difference in their lengths or heights. Then proceed as follows: Divide the distance from the trunk of the tree to the stake *C E*, say 100 feet, by the distance between the two stakes *B F* and *C E*, say 10 feet; then, supposing the difference, in the length of the two stakes is 2 feet, multiply the product or dividend obtained as above by this difference, which will give 20 feet, and then supposing the height of the stake *C E* is 3 feet, add this to the 20 feet, which will make the height of the tree 23 feet.

In case the ground is not level, the spirit-level will assist you.

This mode of measuring trees is an adaptation of our own, of a very simple problem in trigonometry, to the purpose.

RAPID GROWTH OF THE OSAGE ORANGE.—Prof. Sargent informs us that the Osage Orange planted by Dr. Darlington, near his home in West Chester, has lately been cut down. The trunk which shows but 47 annual rings, girths

At 1 foot from the ground,	10 feet 3 inches.
" 3 feet "	8 " 8 "
" 5 " "	8 " 5 "
" 7 " "	8 "

A section of the trunk has been presented to the Museum of the Harvard Arboretum.

ERICINE.—This new coloring matter is so called because it is made from the wood of the Erica, or European Heath. It is also now made from Poplar wood. It dyes a beautiful yellow.

THE DIFFERENCE IN THE CATALPAS.—The *Western Rural* tells a correspondent that the "tender" Catalpa is "tender in the west above forty degrees,"—and that the "hardy" Catalpa is "hardy up to forty degrees."

TREE PLANTING IN NEBRASKA.—The Union Pacific Railroad has made extensive plantations of forests along its line in Nebraska. These under the superintendence of Mr. J. T. Allan, have been generally successful. The trees are chiefly kinds native to the Rocky Mountains, though Larch, Scotch Pine, and some fruit trees have also been experimented with. The regular hands of the road planted the trees under Mr. Allan's superintendence. The plan was to plow up tracts of from two to five hundred acres, sow with grass and clover, and set out the trees at the same time.

NATURAL HISTORY AND SCIENCE.

EDITORIAL NOTES.

BOTANY OF CALIFORNIA.—The first volume was issued several years ago. The other volumes are approaching completion. The work of some of the coadjutors have been issued in advance sheets; at least we have before us the Oaks and Pines by Dr. Engelmann. From this it appears that up to the present time, fourteen distinct species of Oaks have been discovered in California. These are *Quercus lobata*, *Garryana*, *Douglasii*, *Breweri*, *undulata*, (also in Rocky Mountains) *dumosa*, *oblongifolia*, *chrysolepis*, *tomentilla*, *Palmeri*, *agrifolia*, *Wislizeni*, *Kelloggii*, and *densiflora*. These Oaks partake rather of the Mexican than the Atlantic characteristics of the family, and few probably will prove hardy on the Eastern part of the continent. Of *Abies* (which in our gardens we have hitherto known as *Picea*) there are five in California,—*bracteata*, *grandis*, *concolor*, *nobilis* and *magnifica*. Our old friend, *Abies Douglasii*, is, however, now to be neither *Abies* nor *Picea*, but "*Pseudo-tsuga Douglasii*." It is the only Californian representative of the genus. The true Hemlocks are *Tsuga*, of which *Mertensiana* and *Pattoniana* make up all. Of *Piceas*, (our old *Abies*) there is now but one, that which we once knew as *Abies Menziesii*, this is now *Picea Sitchensis*. Dr. Engelmann finds this to be an earlier name than *Menziesii*, and though this change will entail much trouble on nurserymen, it is a change which ought to be made, for it is to the advantage of all of us that the rule of priority should be inflexible. It is only because of the respect paid to it that we can get along at all. Of the true Pines, *Pinus*, Dr. Engelmann finds fourteen in California. 1. *Monticola*; 2, *Lambertiana*; 3, *flexilis*; 4, *monophylla*; 5, *Parryana*; 6, *Balfouriana* (of which he now makes *aristata* a variety); 7, *Torreyana*; 8, *ponderosa*; 9, *contorta*; 10, *Sabiniana*; 11, *Coulteri*; 12, *insignis*; 13, *tuberculata*; 14, *muricata*. Of these, 14, 13, 12, are not hardy in Philadelphia; 11, 10 hardy only when well screened from wind,—the others do tolerably, but suffer from fungi.

WEARING OUT OF VARIETIES.—F. G. says "What is the received belief as to the wearing out of varieties? My Early Rose Potatoes do not certainly do as they once did, and this seems to be true of other kinds. Is it not the same with fruits? Please say decidedly, will varieties wear out or will they not?"

[Yea, verily, varieties will run out,—and yet again they will not run out. If your potato patch has the potato stems bored by the *Baridius*, or the leaves badly eaten by the *Doryphora*, or blistered or burned by the *Perenospora*, or rooted out by the *Homo* before they are mature; or suffer in any way whatever injury to plant or foliage, though to all appearances the "murphies" may be excellent, there will be a certain running out in a few years. But if your Early Rose, or any other variety be perfectly sound and healthy,—if your potato plant goes on growing from spring to the autumn, unto in short its natural period of rest, flowering and fruiting its little seed apples, as nature intended it should, that variety will never "run out." They run out from perpetual accumulations of weaknesses, but not from anything in nature so far as we know.—ED. G. M.]

SCIENCE BY THE REV. JOSEPH COOK.—This distinguished gentleman loves to show up what he regards as the weakness of many modern teachers of science, but his lectures show that he is very ignorant of the sciences he professes to review. In a recent address, we have the following choice bit, which, among a vast amount of agricultural nonsense in regard to Colorado, will make the botanist smile:

"Here grows the strangely nutritious buffalo grass, which amazed me by its sweetness when I plucked tufts of it near Cheyenne."

Those who have collected the *Buchloe dactyloides* have hardly found it at Cheyenne or anywhere high in the mountains of Colorado, for it is a denizen of the plains, and the idea of "plucking tufts" of a creeping plant which rarely grows more than three or four inches high, is as "amazing" as the "sweetness" which the Reverend gentleman professes to have found. Whether he ate the grass like *Nebuchadnezzar* in order to ascertain its "amazing sweetness," or whether

he uses "sweetness" as some people would who may talk of a rose or a carnation, is not clear,—but he certainly found neither in the buffalo grass.

BOTANIC GARDENS.—A correspondent of the *London Garden* says:

"I see that Mr. Meehan says 'the Cambridge Garden is a long way ahead of anything of the kind in America. The Bartram Gardens have little to boast of but a few valuable old trees. Fairmount Park has done wonderfully well considering how rarely a body under political influences comes to much. Mr. Shaw's garden considering that it is the work of one man's lifetime is a rare monument of success. It could hardly be expected to compete with an old institution like Cambridge. In short, Cambridge well deserves the honor of being the best botanic garden in the United States.' No doubt it is so, and yet when I saw it, it was a poor ramshackle affair made after the very poor models in Europe, and without a feature of any particular interest. In this respect it differed much from some of the public parks in America, which are quite equal to anything in Europe."

Cambridge Botanic Garden, since it was remodelled under Professor Sargent's care, is anything else, but the "poor ramshackle affair," the writer above quoted may have seen in the past. But we wish chiefly to say that our reference to it was as a "botanic" garden, and had regard to its collections of plants. If we were to take beauty into account chiefly, Mr. Shaw's garden is a very long way ahead of Cambridge. Indeed as we have already said of Cambridge, its chief defect to our mind is its adherence to the old-time notions that herbarium arrangements must be copied in the garden, and all landscape beauty sacrificed to mistaken scientific requirements. In this respect it is much better than it was once, though still weak,—and yet it is our best "botanic" garden.

FREEZING OF THE SAP OF PLANTS.—It is singular that arguments should still be continued in the way they are. A very intelligent correspondent of a contemporary concludes a very good chapter on hardy plants by the following conundrum:

"And now I come to the disputed point as to whether any plant or tree is able to survive the complete solidification of its sap by cold. Many difficulties attend the practical solution of this question, but my belief is that many kinds of trees do survive, without injury, a complete freezing of their sap in their bodies and limbs for a longer or shorter time, according to circumstances."

As most trees will "bleed" at once after the thermometer goes above freezing point, though they may have been for weeks below zero, did it never occur to those who believe the trunk was a solid block of ice, that the tree must have wonderful powers of thawing out? Completely solidified liquids do not generally deliquesce in a few moments.

DECIDUOUS TREES IN CALIFORNIA.—Referring to a statement by a correspondent of the *GARDENER'S MONTHLY*, the *California Horticulturist* says, in some parts of San Francisco deciduous trees have done well, and names Locust, Walnut, Maple and Ash as among the successful kinds.

BATCHELOR'S BUTTONS.—People who hanker after easy common names, should be those with plenty of money to spare. Then they can send to their seed stores for "Batchelor's Buttons" and get *Gomphrena globosa*, and then send to England for Batchelor's Buttons and get a lot of double Buttercups. Whenever he reads of Batchelor's Buttons he can keep on sending his money, and get something fresh every time.

THE ATAMASCO LILY.—A leading English horticultural journal gives this as the popular name of *Camassia esculenta*. It belongs really to *Amaryllis Atamasco*.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 9.

BY JACQUES.

We all like to hear of original occupations succeeding; many things of value are neglected as

will hereafter appear in these notes. To-day we introduce a novelty in American culture. M. Désiré Corbin, a French gardener, selected the growing of watercresses, and established himself at No. 517 Lebanon avenue, West Philadelphia, above Hestonville, where in a modest

way, always increasing, he began his labors. Soon a market was discovered and a sale ready for all he produced, and he soon added the cultivation of Brussels sprouts, both articles esteemed, particularly by foreign residents. He has now commenced to compete for the mushroom premium offered by the lately President of the Germantown Horticultural Society of fifty dollars,—and he will earn it. Readers may look out for a supply of this delicious edible, and if we are not mistaken M. Désiré's ambition will be rewarded with all he could desire.

New use for soldiers.—Great damage to agriculture by swarms of grasshoppers in Hungary, a large area being entirely devastated, "the local authorities have been," says an authority, "to apply to Budapest for military assistance, besides availing themselves of that of the inhabitants of numerous villages in the district." Is not this a better use for soldiers than to employ millions to kill other millions of men? In connection with the above, and to go from the sublime to the ridiculous, will it be allowable to say here that the gentle, quiet guards of our Park might occasionally, if they choose, pull up a mullein or a dock going to seed; they don't seem to appreciate the situation, passing the most noxious plants hourly, till the seed is dispersed for another and greater crop.

A Mr. White, says a Massachusetts paper, "who is engaged in the pond lily business, has picked 20,000 white pond lilies this season. Of these 17,000 have been sold in Boston." A horticulturist in New York takes orders from gentlemen to supply vases every morning to lady friends, and one in Philadelphia had such an order to the extent of twenty dollars a day during a courtship.

The Florida Orange raisers are reaping fortunes. Wine made from these oranges, three years ago, now tastes like sherry. We are not now writing of great operators like Baron Reuter who took quick advantage of the telegraph's capabilities, and now lives like a prince in a palace, with thousands to do him reverence, but of more humble occupations within the reach of humble means, etc.

The production of butter and cheese in this country, is four times greater in value than the yield of gold and silver mines.

Sixty Peach-packing establishments exist in Baltimore alone, some employing 800 to 1000 hands, exclusive of tin can makers. This is an increase

beyond any calculation that could have been formed at the start.

The California Horticulturist has an article on the Sierra forests, pointing out the great risk there is of these magnificent forests becoming denuded, "as they are now and for many years have been at the mercy of private greed and public theft." America may wake up sometime to melancholy facts, unless the exertions of private planters continue effective. There are cases where a paternal government is a great good. The preservation of wood, planting the cork tree, and many other examples should be kept before the American mind. But what little interest is felt by the great mass of our people in these vastly important things, compared with "Who shall be the next President?"

Progress.—We must take the editor of "Progress" to task. He "wants to know" why no means are taken to produce a supply of mushrooms in this country. His reading has not perhaps extended to the GARDENER'S MONTHLY or to the proceedings of the Germantown Horticultural Society. We are happy in the announcement in this number that preparations are in "progress," and that the topic is not new. Tons upon tons are sold every day in Paris, and so will it be hoped, be here ere long.

Sad if True.—Mr. N. S. Shaler in a thoughtful article on "The Use of Numbers in Society," (*Atlantic Monthly* for September), comes to the conclusion that whoever will follow the subject of the wearing out of soils in the fields of Europe and America will be convinced that a progressive lowering of fertility in the soils of the earth, has attended and must attend the continued advance of man. America, he says, is using or rather misusing in a year the treasures that a thousand years have been preparing. But what a wonderful provision was made that they have held out so very long.

Keith Johnson.—The death of the younger Keith Johnson, son of the great geographical map and book author, is much regretted. He was leading the Geographical Society's Expedition in Africa, and died of dysentery, 130 miles inland. He came of a famous house, and had done good work in South America. His death is a real loss to scientific geography.

All who have traveled much lately, must have remarked the improvements around stations and the gardens distributed with taste at the watering places, with the gradual introduction of flow-

ers: Examples are found in many places, especially on the Pennsylvania Railroad, and the great garden of Mr. Hoey at Long Branch. All these are evidences of increasing civilization. In short, one scarcely moves in any direction without remarking increased comfort on the road or at the hotel. Neat and easy chairs meet a great want of the aged and the invalid; increased ventilation of cars; more freedom from dust; and, let us hope, more civility marks the new era. There is something yet to learn, and we may hope that if the attractions of travel unsettle the lover of a country home, with its wealth of flowers and fruits, we may meet abroad with what gives a charm to life. What, for instance, more charming than to alight at a station and find it adorned with magnolias, or the *Hydrangea paniculata*, the former early bloomers and the latter coming in August and lasting till frost, with its large panicles, white at first and turning to a delicate red as the days go on. Depend upon it, those railroads that pay a little and not costly attention to these minor details, will find their exchequers tell a good story. This attention to the feelings of æsthetic culture not only gives pleasure to the traveler, but prepares him on his return to imitate and try to excel. Is there anything that costs so little as flowers and trees, that makes life so much of a pleasure?

A Year in a Lancashire Garden, by Henry A. Bright, is a gem from the press of Macmillan. It is English, but many of its remarks apply to all garden-loving people. Nowhere is the art of gardening brought to such great perfection as by the English, who are strong in horticulture and strong in poetry; the poet's song adds perfume to the violet and a beauty to the rose. This Mr. Bright thinks is neglected by gardeners in these days of "bedding" stuff, which he hopes may disappear before any poet undertakes to celebrate it in song. He says, "I am heartily weary of the monotony of modern gardens, with their endless pelargoniums, calceolarias and verbenas. Some few such beds I cannot dispense with, but I am always glad when I can reclaim a bed for permanent use."

EDITORIAL NOTES.

EDITORIAL LETTER.—Now, when the snow is on the ground, I look back on some of the pleasant experiences of the past Summer season, when I have met the friends of the GARDENER'S

MONTHLY in many pleasant places; I think over the many interesting experiences, and wonder when I may be permitted to go over the ground again.

It was one lovely morning in June last, that I emerged from the palace car to the platform to find myself passing the pretty town of Newport, by the Tuscarora Mountains, on the line of the Pennsylvania Railroad. The road-bed ballasted with broken stone, was therefore entirely free from dust, and rendered the position a particularly enjoyable one. The sun just peeping over the hills, lent a peculiar brilliancy to the Red Maple leaves, and the little clouds of mist which the sun was still powerless to lift over the mountains tops, floated around into the little hollows above the Juniata and in the mountain sides. Nothing possible could be more beautiful than the scenery in this part of the world. As the train winds around the mountain sides, every possible variety of surface comes into view,—now we look up at the trees in the clouds, and now we are attracted to some little meadow scene several hundred feet below. All around, every where, a singularly beautiful style of vegetation abounds. Now we pass immense clumps of the Red-berried Elder, with its rich currant-like fruit mixed with the white flowers of the common or Canadian Elder, which is only just coming into bloom. Then there may be large tracts in which the principal feature is afforded by the Lady Fern, which seems to be particularly abundant in the Alleghany Mountains. Then the *Rubus odoratus* with its showy red flowers thrusts itself, but not unwelcomely on our attention. *Spiræa Aruncus*, with its white feathery spikes, quite as pretty as the plumes of the pampas grass, abounds; and what shall we say of the *Kalmias*, *Rhododendrons*, and plants of that class? But I will stop imagination here to express my astonishment at seeing a magnificent "forest" of *Rhododendrons* growing in limestone. I should like to have had the man there that started the idea that *Rhododendrons* will not grow in limestone soil. Well, there was at length Pittsburg and Alleghany City, and again had to note how remarkably well the much abused *Ailanthus* thrived as a street tree amidst the almost indescribable black smoke of the Iron City. It seemed to be a universal favorite. Indeed there were few of any other tree. We pass through a very beautiful park at Alleghany City, with a huge prison in the centre, about which, if I mistake not, the

Alleghenians are much moved. As in many other places they get up popular cries for spending money, moving a building for some reason, to another place where first the same reasons prevail, with little other good resulting but spending a huge pile of money. Some \$700,000 have been spent in moving a prison because the site was not healthy, when the same spot becomes a prison of another sort again. It is not simply "parks and gardens" which find the weak men in the good places. The gardening in the vicinity of Pittsburg and Allegheny is very good, considering that there are no landscape gardeners with anything more than local fame about there, and its architectural beauty is generally very good indeed. But as we get towards and into Ohio, good gardening did not afford remarkable illustrations. I remember how much the architectural beauty of the City of Alliance impressed me, but the gardening was of the meanest possible character. Of course there must be some exceptions if one had the opportunity to go about and search for them, but there was abundant opportunity for good gardening in many places under the immediate eye of the traveler, which in many cities with as much taste and wealth as the architecture exhibited, that would have been taken hold of to better purpose than here.

It is interesting to note how some weeds are as choice in their selections of new homes as some men are. Here, in Pennsylvania, the European *Ranunculus bulbosus* is the common Butter-cup of the meadows, and though the *Ranunculus acris* is found occasionally, it is never abundant; but in Eastern Ohio, this *Ranunculus acris* is the prevailing Butter-cup,—the other being rarely if at all seen in the fields. The European Yellow Charlock, or field mustard is also a very common weed in Eastern and Northern Ohio. When the traveler gets to Cleveland, he not only finds nice houses, but nice gardens, and considerable taste displayed in public grounds, and garden neatness everywhere. But even here one could not but be impressed with the fact that gardening knowledge was very far from being up with the times, or at least with the abilities of modern landscape gardening. Nice lawns, well kept walks and roads, and handsome trees abounded, while there was a profusion of flowers in most places, giving a gay and cheerful aspect to the city homes. But there was very little if any design anywhere, or attempts to derive the pleasure

which the study of true taste in gardening affords. Every garden would have a few Norway Spruces, some few common ornamental trees, some shrubs or flowers; but just for what reason they would be planted in any one place rather than in another, it would be hard to tell. The lack of variety also was remarkably apparent, and indicated rather the work of the tree peddler than the intelligent selection of the landscape gardener. In the matter of climbing or creeping vines for instance, the Virginian creeper was everywhere, but nothing else out of the many dozens of nice things that might be had. In my drivings and wanderings about the city, I must have seen many hundreds of vines, but besides the Virginia creeper saw but one other, a scarlet coral Honeysuckle in a poor man's garden at the end of Euclid Avenue.

This avenue is the popular "rus in urbe" of the well-to-do Clevelander. I think it must run from the heart of the city out perhaps twenty miles. Nearer the city the pavement is of smooth flag stones, then comes to the curb about fifteen feet in width of grass, which is kept neatly mowed. The street is lined with maples, elms, and others, and the whole affords a very pleasant drive. The laying out of the street was very judicious as a real estate speculation. On one side the lots are comparatively shallow, on the other side of the Avenue they range from three or four to even six acres. These last being mostly occupied by very wealthy people have very nice places; while those who can afford only the smaller lots on the other side, have a good view of the pleasant scenery opposite, and will pay much more for a small lot than they would under other circumstances.

Of the places individually there are some on the avenue that merit much more credit than the general criticism already given would indicate. Some of these I made brief visits to. A very fine graperies is owned by Col. Harris, in which the foreign grape is very successfully grown. Mr. J. H. Perkins, a leading banker of the city, occupies about six acres in a beautifully laid out garden. A small stream of water runs through the centre, and we pass on through a succession of rocky steps, fern-covered slopes, fish ponds, rock work, from shade to sun and sun to shade, in a very agreeable succession of rural objects. In some places the shelter by close planting is so complete, that the yew and other plants usually esteemed but half hardy at best, bends down and covers the water as well as in ever-

green-blessed England. There are greenhouses and other floral luxuries on the place which is on the whole a very charming one. Mr. Geo. Morgan is Mr. Perkin's gardener, and we found him one of a high degree of intelligence.

Mr. Wade has also beautiful grounds; a drive going completely around it. There are here graperies and greenhouses, and a very comfortable looking gardener's house on the grounds. The most pleasant of my recollections here are some remarkably beautiful Hemlock, Spruce and *Pyrus japonica* hedges, and I must not forget the amazingly healthy and beautifully fruited cherry trees. Cleveland is, however, the paradise of the cherry. Trees bending under the weight of fruit are everywhere. Everybody has them. Even the poorest looking yards have one or two cherry trees. Somewhere near here—perhaps on these grounds—I saw a magnificent specimen of *Pinus Mugho*, and a large golden willow, and I gave thanks that some one had varied the eternal Norway Spruce, and the Maple, which however beautiful in themselves, one does not want to meet for ever. Also some person whose name I did not learn, had made some break in the everlasting sameness, by making belts of clipped Norways, box, and some things which were pleasant to see by way of change.

The florists and nurserymen, though with no great variety in their stock, seemed to be mostly prosperous. I made hasty calls on Sked, Paddock & Co., Harris Jaynes, G. Probeck, and James Eadie, all of whom seemed prospering. Since Dr. Beaumont's death, his nurseries have not been pushed, and the much respected McIntosh, though I found him hale and hearty for his age, is pushing neither. Case, whose melancholy death has just been recorded, had a very live nursery under Mr. Wiegel's management. Few men did so much to benefit the city as Mr. Case, and it is to be hoped his nurseries will still go on and flourish. Mr. Eadie has about ten acres in his nursery, which are worth probably about \$2000 an acre at the present time, but his chief lines are in growing plants for market, wholesale and retail. The Fuchsia is the favorite Cleveland pot plant, and of these Eadie grows thousands. Mr. W. J. Gordon has one of the finest private gardens and parks in Cleveland; but by a misunderstanding with some friends as to time, I was disappointed in getting to see it.

The public parks and cemeteries of Cleveland

are very interesting to a garden-loving stranger. Wade's Park is a beautiful piece of ground. It is freely given to the city's use by the liberal owner. It is chiefly natural woods with dense undergrowth and very varied surface, with rocks and rills, and log bridges, and other accessories of the rural plentifully distributed through it. Art has done much in carrying roads through it, as well as spoiling the effect by planting numerous belts of Norway Spruces all along the roads, for somehow a lot of Norway Spruces in a wild American oak and birch wood detracts from the great natural beauty which otherwise impresses one. Lake View Cemetery has a striking monument to the memory of Jephtha H. Wade. Like the best of Cleveland's progressive citizens, he was the architect of his own fortune. From a telegraph operator to a millionaire, but his millions chiefly spent in making the fortunes of hundreds of others in the city. This cemetery is remarkable for the beauty of its undulating surface, and the landscape gardening can scarcely be anything else but good; but the same defect, want of variety in the planting exists here, as so often elsewhere. Clump after clump of Scotch Pines meet one everywhere, as if the company had bought out a lot of them on some cheap speculation, and was glad of some reasonable excuse to get rid of them. Lake View Park—a sort of narrow drive along the river bank,—is perhaps a quarter of mile long, and affords a pleasant spot for the pedestrian as well as for the equestrian visitor. The drive is low down towards the lake shore, the other side from the road being elevated, and grass kept neatly, and grottoes, clumps of shrubs, and shade trees used to ornament it. The broad promenade at the top, looking down on the gardens, the carriages and horsemen, and the huge lake below, has a very good effect indeed, and renders it a very pleasant spot for the Summer evening saunterer from the more busy haunts of business, and "hum-drum" of every day life.

A short visit to the home of our old friend Dr. Kirtland affords an interesting reminiscence. The pretty country house is still in the possession of Mrs. and Dr. Pease, his daughter and son-in-law. The originals of his still famous cherries are in many cases still standing, and also are his magnolias and many other rare things on which he prided himself so much. Among the rare trees are some fine specimens of the European Silver-Fir, and in the borders ferns and rare herbaceous plants. It was a

great pleasure to find his descendents priding themselves on preserving the various mementoes of this distinguished horticulturist and man of science, as well as taking an intelligent interest in them for their own sake.

How brief must a letter like this be! All one can do at best is to hint that much may be seen if he but keeps his eyes open, and perhaps to tell that if people would only go to Cleveland, they could find many things worth seeing that I have not room to tell about.

OUR TWENTY-SECOND YEAR—THANKS TO OUR CONTRIBUTORS.—Entering on the twenty-second year of our labors with the GARDENER'S MONTHLY, we cannot forbear our thanks to our numerous contributors, by whose generous aid, we have been able to make American Horticulture respected by means of our pages, all over the world. The editor often thinks if he were at the head of some serial where the publishers charged four or five dollars a year, instead of two, and could then divert some of it to a fund for the employment of those busy pens which cannot afford time to send notes of their experience under any other plan, he might perhaps be surrounded by "a galaxy of able names" that would give much brilliancy to his work. But when he thinks of the great number whom a two-dollar magazine reaches, that could not afford a more expensive one, he feels satisfied to go on in the humble field of usefulness, as he has done, and leave the more brilliant situation to others. After all, the numerous brief notes from actual workers and thinkers are no less useful than the studied and labored efforts of distinguished pens. The immense numbers of these received by the Editor, have in a great measure made the magazine what it is,—and in the hope that they will be continued as heretofore, he enters cheerfully on the second twenty years of his labors.

TYPOGRAPHICAL AND GRAMMATICAL SLIPS. Some of the correspondents of the GARDENER'S MONTHLY keep a sharp look out for the little slips which in hurried periodical writing, are almost unavoidable. But we often wonder why the same acuteness is not displayed towards other journals. The errors in other quarters, especially in European papers are marvellous,—but it is extremely rare that any corrections are offered. We are always glad to correct, and are thankful for the corrections; but think our friends might do a little of it elsewhere. For instance, some one might ask a respected con-

temporary which has recently given a portrait and biography of Colonel Wilder, and reports that the good Colonel has "re-married twice," whether it means that he has had three wives?

ILLUSTRATED CATALOGUES.—These are now so common and so beautiful as to be generally beyond criticism,—but once in a while we notice some surprising ones. Here is one of the very highest firms before us, in which something like a huge tobacco plant does duty for "mustard," and a sort of young kidney-bean is the "cress." The "corn salad" may be all right, though it could be used on a pinch for an over-grown mullein. The "endive" if inverted can be used some time as a swallow's nest!

BOYLE'S NURSERIES, PHILADELPHIA.—For a long, long while, Boyle's greenhouses have had a good local fame in Philadelphia, though not known much beyond. They now pass into the hands of Mr. John Donn, one of the many enterprising men whom Mr. Henderson trains up, and we are sure the new addition to the florists of Philadelphia will be welcomed by them, and prove to the city's interest in every way.

HEALTH OF COLONEL WILDER.—It is gratifying to note that for the first time since his accident, Col. Wilder presided at a public meeting—the annual meeting of the New England Historical Society,—on the 7th of January. His eloquent annual address was fully equal to any of his former efforts.

MR. PETER B. MEAD.—This gentleman, formerly Editor of the *Horticulturist*, is on the programme of the New Jersey Horticultural Society which was to have its meeting on January 15th. The subject Mr. Mead discussed was "The culture of plants in our living rooms."

CHARLES DOWNING.—Mr. Hussman in the *Rural World*, gives a pleasant sketch of a visit to Mr. Downing, whom he describes as comparatively hale and hearty, though so far advanced in years.

COL. M. P. WILDER.—The number just issued of the Biographical Encyclopædia of Massachusetts, contains a beautiful portrait, and an appreciative sketch of the life and services of our distinguished friend.

THE AMERICAN ENTOMOLOGIST.—This magazine suspended nine years, has been revived, with Prof. C. V. Riley as editor-in-chief, and Mr. A. S. Fuller as associate editor. It will in future be published in New York, at \$2.00 a year.

The first number of the new series is now before us. Botany, Ornithology and other branches of science will be touched on when the subjects have relation to Entomology. Entomology is a wonderfully extensive field, and though there are several magazines on our continent devoted to this branch of science, there is probably room for the successful existence of all of them.

EUCALYPTOGRAPHIA. By Baron F. Von Mueller, Melbourne, Australia.—The third "decade" or ten illustrations of this fine work is now before us. We have here figures and descriptions of the following species: *Baileyana*, *capitellata*, *gracilis*, *maculata*, *obliqua*, *pauciflora*, *pilularis*, *piperita*, *polyanthema*, *populifolia*.

TEA CULTURE. By Wm. Saunders. Issued by the U. S. Department of Agriculture.—This gives a full history of Tea and Tea culture. In America, attempts at Tea culture have been made certainly since 1828. No real attempt of consequence was made till 1858,—but with the subsequent political disturbances, no one could expect much to be done. Since the present commissioners came into office, much has been done to encourage experiments, and Mr. Saunders shows very clearly that there is no reason whatever why Tea culture may not be a complete success in the United States, when the subject is understandingly pursued.

CORRESPONDENCE BOTANIQUE. From Prof. Morren, Leige, Belgium.—This is the seventh edition of this very useful list, which comprises the names of all the managers of botanic gardens and leading botanists of the world. It is pleasant to see the United States so well represented in the botanical fraternity. Though some more might be fairly added, it is a wonder that such a work should be so full as it is.

BROOKES' TEXAS ALMANAC. M. Strickland, Galveston, Texas.—This must prove a very useful work to those intending to settle in Texas, or who are in any way interested in the State. It tells all about hedges, geology, fruit culture, railroads, wool growing, the newspapers,—in fact almost everything relating to the agriculture, commerce and government of Texas.

DAIRY FARMING. By J. R. Sheldon, Part 6, New York: Cassell, Petter & Galpin.—We have already noticed this beautiful work. The part before us has for its colored illustration, "Leguminous plants and weeds." Among them is

the Alsike clover (called here meadow-clover), *Trifolium medium*; also, Hop-trefoil, Lucern, Birds-foot trefoil, Millfoil, Rib-grass, and other things. The text in this number is devoted mainly to the geological formation of soils,—also a chapter with illustrations on underdraining.

ILLUSTRATED ANNUAL OF PHRENOLOGY FOR 1880. S. R. Wells & Co., N. Y.—Among other interesting matters are some good horticultural items, particularly illustrations of Australian Tree Ferns and *Zamias*.

DEATH OF THE FOUNDER OF THE GARDENER'S MONTHLY, DANIEL RODNEY KING.—This well known lover of Horticulture died at his residence at Roxboro, near Philadelphia, on the 13th inst., aged 62 years. For some years he has been in feeble health from paralysis, though naturally of a strong and vigorous frame.

He was descended from the old family of the Rodneys, famous in the history of the revolution, and before the war for the Union was at the head of one of the leading manufacturing establishments which had its chief support from the Southern States. Much of his wealth was devoted to gardening, and his home was celebrated for rare and beautiful plants, and the taste displayed in their arrangement. He was one of the leading supporters of the Pennsylvania Horticultural Society in its best days, was for many years its President, and it was chiefly through his exertions that the magnificent Horticultural Hall was built,—a building which is one of the boasts of the citizens of that great city. The idea of establishing the GARDENER'S MONTHLY wholly originated with him, and his money sustained it for several years, until it was able to go alone.

The breaking out of the war was a serious blow to him. He had been extremely liberal with the Southern people, and extended to them heavy and extended credit. These debts due him were all appropriated by the Confederate government, and was a serious blow to him, and which with the loss of the market for his goods, gave him, financially, a blow from which he never recovered to any extent that would warrant him in devoting much to horticultural luxuries, though to the last he preserved a lively interest in all that was going on.

The idea of establishing the GARDENER'S MONTHLY originated solely from his love of the subject, and without the slightest idea of making any money by the venture.

At that time the leading horticultural maga-

zine was issued at \$4.00 a year, and he believed that horticulture would be served by a cheap serial, which, while being intelligent, should yet be able to reach the multitude where the higher priced periodicals did not go.

The war interfered somewhat with this plan, as it did with so many others, and the magazine had to change its course slightly; but it has been able to follow tolerably well, considering all things, in the path marked out by its generous founder, and the many thousands who in the past have enjoyed its pages, and the many whom we hope will for many years continue to enjoy them, will not forget to whose forethought they have the work.

Ever foremost in every good work for the benefit of his fellows, and for the good of his city, we feel sad at the thought that such as he must go so soon, and so many useless lives left behind; and yet it is only by comparison with the common run of mankind that we are able to see in such men as D. R. King, how much is lost by the death of such a husband, father, citizen and friend.

AMMON BURE.—We have only recently learned of the death of this well-known horticulturist, who died at Dallas, Texas, in the Spring of last year. His wife and daughters are still keeping on the florists' business, in the old place near the city of Dallas.

MR. GEORGE GORDON.—This gentleman, for many years Superintendent of the Royal Horticultural Society's gardens at Chiswick, near London, is among the recently deceased. He is best known to our readers as the author of Gordon's "Pinetum," which in a measure filled a great want. Botanically it was an imperfect work,—but it did more to make a knowledge of coniferous trees known among people generally than anything that preceded it, and horticulturists have always been grateful to him for it.

THOSE PLANT PATENTS.—Though we have often given reasons for believing that "patents" for new plants are both impolitic and impracticable, it may serve a good purpose to give the following pithy chapter from the *New York Weekly Sun*, edited by Mr. A. S. Fuller:

"From a pretty close and familiar acquaintance with the various new fruits that have been raised in this country during the past thirty years, we think the originators have received very good prices for them, and in a majority of in-

stances five times their actual value. Nearly all the new grapes have been retailed for the first two or three years, and even longer, after introduction, at from \$2 to \$5 per vine; strawberries at from \$3 to \$5, and even \$10 a dozen; and new potatoes, like Early Rose, at \$100 a bushel, while in one instance, \$50 was given for a single tuber. If we remember right, Dr. Grant paid \$1,500 for the original vine of the Eumelan grape, and Mrs. Rebecca Peak obtained as much or more for the Rebecca, and we think the most ardent champion of patents in horticulture will admit that these sums were in excess of what the varieties named were worth, except for speculative purposes. We might name scores of similar instances of exorbitant prices paid to originators of new plants that proved upon propagation and dissemination to be of little or no value.

Really choice and valuable fruits, vegetables, and plants always have commanded and probably always will command good paying prices, but the poor and worthless will scarcely find a market, even if they are patented. We have endeavored to show in former articles that the granting of patents for plants was entirely impracticable, owing to the great rapidity with which some kinds can be propagated; when these are once sent out, the idea of following or collecting a royalty is simply ridiculous.

But even this is not the worst feature of this proposed patent scheme, and we would like to have its friends tell us where they are to get a board of examiners to decide whether a fruit or other plant was really a new one or not. Men who have devoted their entire lives to the studying of horticulture are certainly better qualified to pass upon such products than those who do not know one kind of pear or apple from another; and still if we look over the synonyms of nearly every variety that has been in cultivation twenty or more years, it is quite evident that there has been some trouble in getting them properly identified.

Only a half dozen years ago two of our oldest and presumably most learned and experienced pomologists, together with a Professor of Botany, visited Detroit, Michigan, as a special committee to decide upon the merits of the Mexican ever-bearing strawberry, and they not only reported it a new variety, but actually a new species. It was named *Fragaria Gilmani*, but it subsequently turned out to be the old monthly ever-bearing, red Alpine, which had been cultivated in Europe and this country for nearly a

century. A change in the method of culture, in the soil and season produced such an effect upon the plants that they were scarcely recognizable by our most learned experts.

Similar temporary variations occur with all kinds of fruits and plants, and the greatest horticulturist or botanist that ever lived is very likely to be misled by them, and to pronounce old and familiar plants to be new varieties. No such difficulties exist in the identifying of mechanical inventions, or even the principles of mechanics, for the models, drawing, and specifications can be placed on record for future reference."

SCRAPS AND QUERIES.

EDITORIAL COURTESY.—"Critic" writes: "Pardon my question, for I only write because I know you like to have things just right, and I would like to know why you refer to the editor of the *Country Gentleman* as 'it,' as I note in your last reference? Would it not sound better to say he said this, or he said that, than to refer to him as an 'it?' I am only this critical that I would like to know the reason, for I take it for granted you have some explanation you can give."

[We have no certain means of knowing that the editor of the *Country Gentleman* is a "he." It may be that he is a "she." Again, we fancy there are several editors to such a large weekly paper as the *Country Gentleman*, and these may be a "he" and a "she," or several of such all together. But the real reason why we used "it" was because we had neither a "he" or a "she" in our mind while speaking, but the paper itself, which is neither a "he" nor a "she," but a paper. That is to say, we referred to the paper, and not to any one person in particular that conducts it. In fact, it was really "it," and not any particular "he" or "she" that we referred to.—ED. G. M.]

ADVERTISERS AND READERS.—The publisher hands in a letter from J. Q. A. D., of Owatonna, Iowa, who indignantly orders his MONTHLY "stopped." He ordered from one of the firms advertising in our columns some "Pearl" tuberoses. When they flowered he could not see that they were different from the old kind, and he will not "subscribe to any paper which admits advertisers of this kind into its columns." We do not know even to which of the firms advertising in our columns he refers, but that a

publisher should look into every article that every firm sells, before such firm is allowed to advertise, shows how much some people expect for two dollars a year. On the other hand, there are some who calculate how much they make by reading the GARDENER'S MONTHLY, as well as what they may lose by such an occurrence as the other describes, and of such is the following from St. Joseph, Missouri:

"In past years we have had no end of trouble with Verbenas, but after reading Mr. Peter Henderson's article in the GARDENER'S MONTHLY, on *Verbena Rust*, we gave them the treatment he described, and now have 3000 of the finest plants that one could wish. If we had had the same result last year we should be many dollars cash in pocket now."

We fancy there is nothing in the world that is an unmixed good. Such perfect experiences may be had in Elysium, but hardly in the advertising columns of even so careful a magazine as the GARDENER'S MONTHLY. All we can hope for is that the "profit" is largely ahead of the "loss" account; and we really believe there is no subscriber but gets back his full two dollars' worth, after allowance for all drawbacks.

HOW TO GET GOOD MEN INTO PUBLIC PARKS AND GARDENS.—E. writes: "In answer to your problem, 'How to get the office to the good man, who does not want it,' I may say, every good man will accept a good office, but may lack the low cunning to obtain it. The unfit man gets the office by the intrigue of other interested persons, who expect to gain thereby.

"The commissioners of the National Antietam Cemetery, after interments in the centre were over, and the large outer grounds were to be embellished with trees, shrubs, and seeded down with grass, etc., were anxious to get the right man to plan and direct. They addressed sixteen gardeners in different States, and propounded practical questions to all alike. After all the answers had been received, the commissioners met and read the answers. Twenty-five out of the twenty-six commissioners voted for Walter Elder of Philadelphia, and he got the office.

"If all other commissioners and corporators were to do the same, every man would answer for himself. Intrigue would not get in, and the right man would likely get the good office. In that way our ornamental horticulture would become eminent and receive the credit it would then deserve. Nurserymen would be benefited

by these good models of public gardens and their influence be felt far and wide."

GOING ROUND THE WORLD.—A good correspondent is still wicked enough to tempt us to envy. He says: "Since I saw you I have been round the world. The flora of the East, rich as it is, and novel to us much of it, does not com-

pare with our own as a whole,—not even on the foot-hills of the Himalayas, where I expected to have found something remarkable indeed, from what I had heard and read. The famous Banyan tree near Calcutta, is indeed, worthy to be a temple of all the gods, if not indeed far too good for any that I found enthroned about those parts."

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—The annual election for officers the last week in December, though usually a local affair, had something of a national interest given to it by the issue, on December 11th, of a portion of the *American Naturalist* for January, with an article signed by Prof. E. D. Cope, and which was sent to leading members, with editorial articles in the leading daily papers, in order to elect a ticket made up by Mr. Cope and his friends. Since the election, another article on the Academy, to be published in the February *Naturalist*, has been issued and circulated in advance.

One would think, in common fairness, that if the editors of the *American Naturalist* can find so much room to criticize a report made by the Academy of Natural Sciences, they would publish that report also, so that the public could judge for themselves as to the merits of the case.

We may tell the public in brief that Prof. Cope proposed that thirteen professors in the different departments of science should be compelled, as a part of their duties, to take in hand as well the financial and business management of the institution,—replacing twelve members of the Academy now elected (four annually) for six years for that purpose. This was regarded as so unjust to the members of the Academy, as well as to the Professors themselves, that the proposition was unanimously voted down by the councils, and also unanimously by the very large meeting, before which the council's report came.

As already noted, Prof. Cope then thought to carry his point by a ticket composed of gentlemen whom he supposed might favor his views. This ticket did not receive forty votes, while the following received over one hundred and forty, the figures varying a little in a few cases: Presi-

dent, Wm. S. W. Ruschenberger; Vice-Presidents, Wm. S. Vaux and Thomas Meehan; Recording Secretary and Librarian, Edward J. Nolan; Corresponding Secretary, George H. Horn; Treasurer, Wm. C. Henszey; Curators, Joseph Leidy, Wm. S. Vaux, Chas. F. Parker, R. S. Kenderdine; Councillors, Rev. H. C. McCook, Edward Potts, I. C. Martindale, Theo. D. Rand.

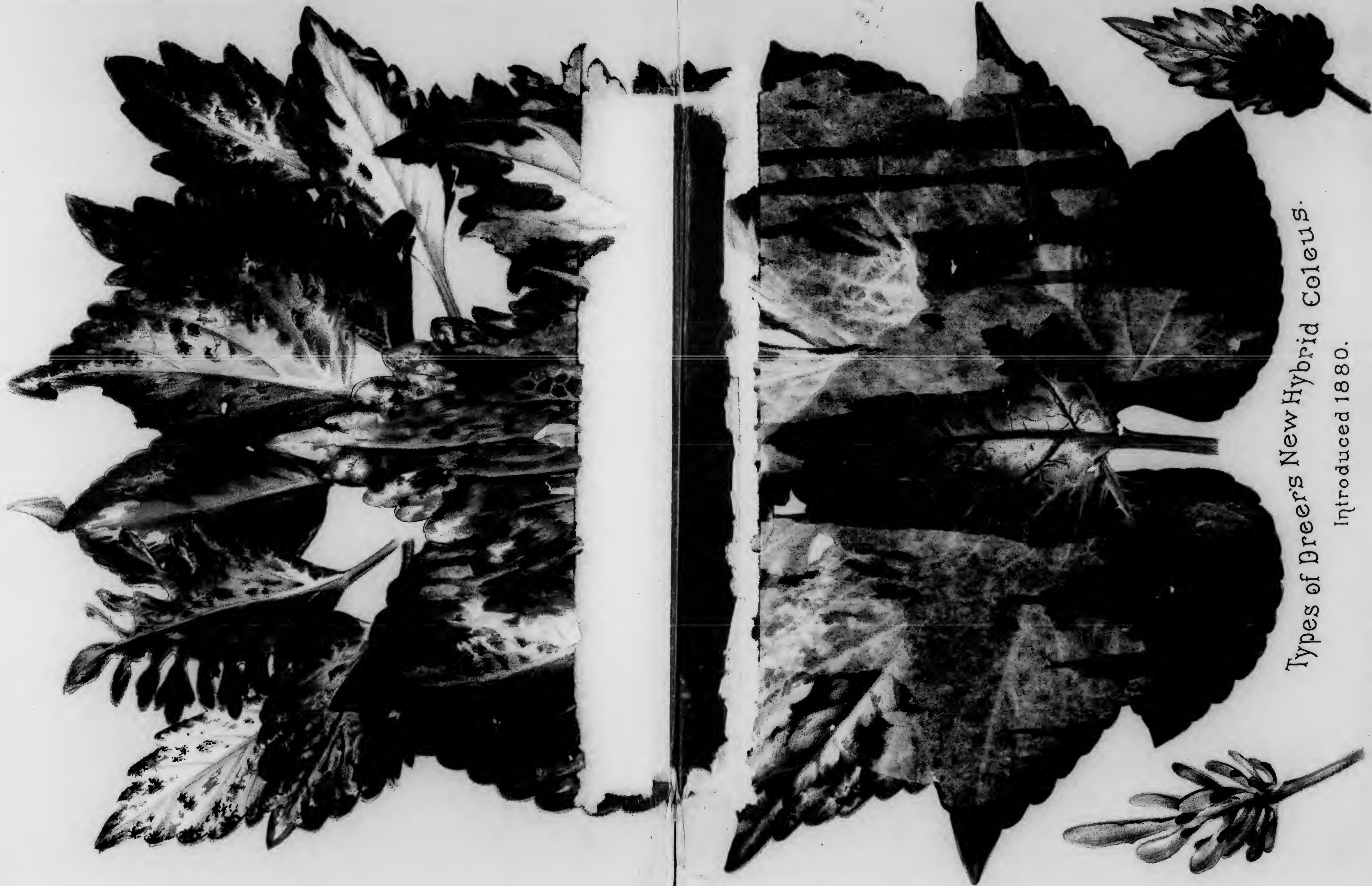
Notwithstanding this emphatic condemnation of the plan, Prof. Cope, through the *American Naturalist*, is trying to make the world believe that something very dreadful has happened to the Academy, and that its well-earned reputation in the past is to end in ruin.

As an illustration of the peculiar fitness of some scientific men to attend to practical business affairs, it will be fairly in place to note that Prof. Cope has had his seat in the council declared vacant by the Academy for a violation of the rules, and another elected to it in his place. It appeared that he had not even read the rules and regulations of the institution he was governing!

We think the Academy has acted wisely in letting scientific men attend to science, and giving up business to business men.

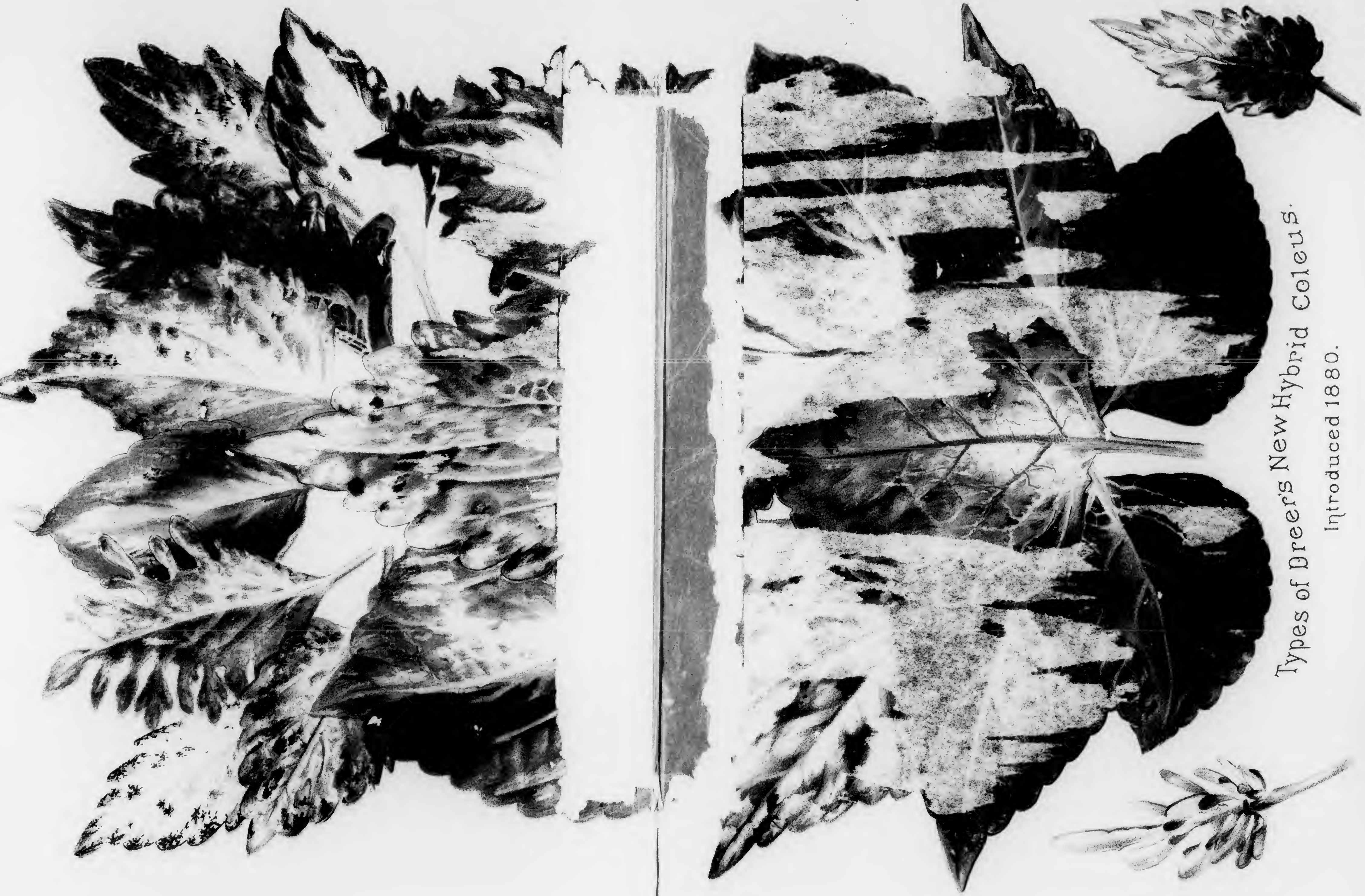
WORCESTER COUNTY (MASS.) HORTICULTURAL SOCIETY. Schedule of Premiums for 1879.—It is a pleasure to note that House Gardening receives especial attention. There are over twenty premiums offered for parlor plants of various kinds.

MASSACHUSETTS HORTICULTURAL SOCIETY.—Hon. Francis B. Hayes has been elected President for the ensuing year. \$3050 were appropriated for the premiums for the coming season. E. B. Buswell was elected Treasurer and Robert Manning, Secretary. The first essay for the discussional meeting was to be by Mr. Tailby, on *Cypripediums* and *Eucharis*.



Types of Dreer's New Hybrid Coleus.
Introduced 1880.

COLOR PLATE MUTILATED PAGE



Types of Dreer's New Hybrid Coleus.
Introduced 1880.

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXII.

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Number 255.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There are indications that the love of art in landscape gardening is meeting with a fresh revival. There have been several periods within the time of living men, when there was much enthusiasm for this kind of art, notably in the time of A. J. Downing. The business depressions of late years have kept people more to the bread and butter side of life. Art is now reviving, and garden art, with other kinds. It will be a pity if this new born taste be not judiciously guided. In the past we have seen thousands of dollars wasted in the effort to get something nice. In a large number of cases, pretty effects may be obtained by a small expenditure of cash. Usually the one who yearns after a nice garden sees a pretty plan in some book that he likes, and he resolves at once to imitate it. Or he sends to a landscape gardener for a plan whereby to improve his ground, and goes on with what is suggested, — or perhaps he puts the whole into the hands of some "jobber" in the vicinity, who "landscapes" to the tune of several thousand dollars, leaving a place of no more beauty than it was before. In some other cases the owner "knows what he wants," and "does what he likes with his own," and generally at a much heavier expense than in any of the other cases.

Now most places have some peculiar natural beauty which only needs to be brought out or added to, and any plan drawn where the draughtsman has never seen the grounds, should be looked on with suspicion. Even after seeing the place, the artist should not merely be asked for the "best" plan for improvement, — but "what can be done for the least money?" Another thing to be kept in mind is that not only the cost of the improvement proposed should be known, but also what the place as improved will probably cost every year to maintain it in neatness and beauty. We have known many a beautifully improved place to fall into disgrace very soon, because the annual expenses were a surprise to the owner. In all improvements, beware especially of plans from foreign works. Their wants are not our wants, — and though the principles of beauty may be the same all the world over, our ability to enjoy these "principles" makes all the difference. For instance in the old world people can get about more in the height of summer than we can, — while we go into the shade and enjoy. We want more shade to our roads than Europeans do. To explain our meaning, we give on the next page what is regarded as a good model of landscape gardening, from the very fine French work of M. Andre recently issued. This may be perfection in a cool climate, but with the thick belts on one

side, and no trees on the other, it would be too hot for us. We fancy our Southern readers would not sacrifice their nice groves of Magnolia grandiflora and Live Oak for all the niceties of such art as exhibited in the plan reproduced here.

So far as the South is concerned, gardeners work with a view to the coming spring; but for those gardens north of the Potomac, there is plenty yet to do. For them at least we may offer a few brief practical hints.

Prune shrubs, roses and vines. Those which flower from young wood, cut in severely to make new growth vigorous. Tea, China, Bourbon and

Noisette roses are of this class. What are called annual flowering roses, as Prairie Queen and so on, requires lots of last year's wood to make a good show of flowers. Hence, with these, thin out weak wood, and leave all the stronger.

Do not transplant extensively till the ground is warm and the buds are about to push. Many things die by exposure to winds for a few weeks before they have warmth to push roots and leaves into growth.

The rule for pruning at transplanting is to cut in proportion to apparent injury to roots. If not much the worse for removal, cut but little of the top away. Properly pruned, a good gardener will not have the worst case of a badly dug tree to die under his hands. In a nursery, where these matters are well understood, trees "never die."

Chrysanthemums are now indispensable for autumn decoration of the flower garden. Now is the time to procure a supply. They do well in any rich garden soil that is not too dry. The Lilliputian, or Pompone class are still popular for conservatory or pot culture, but the large flowering kinds still remain the gems of the open ground.

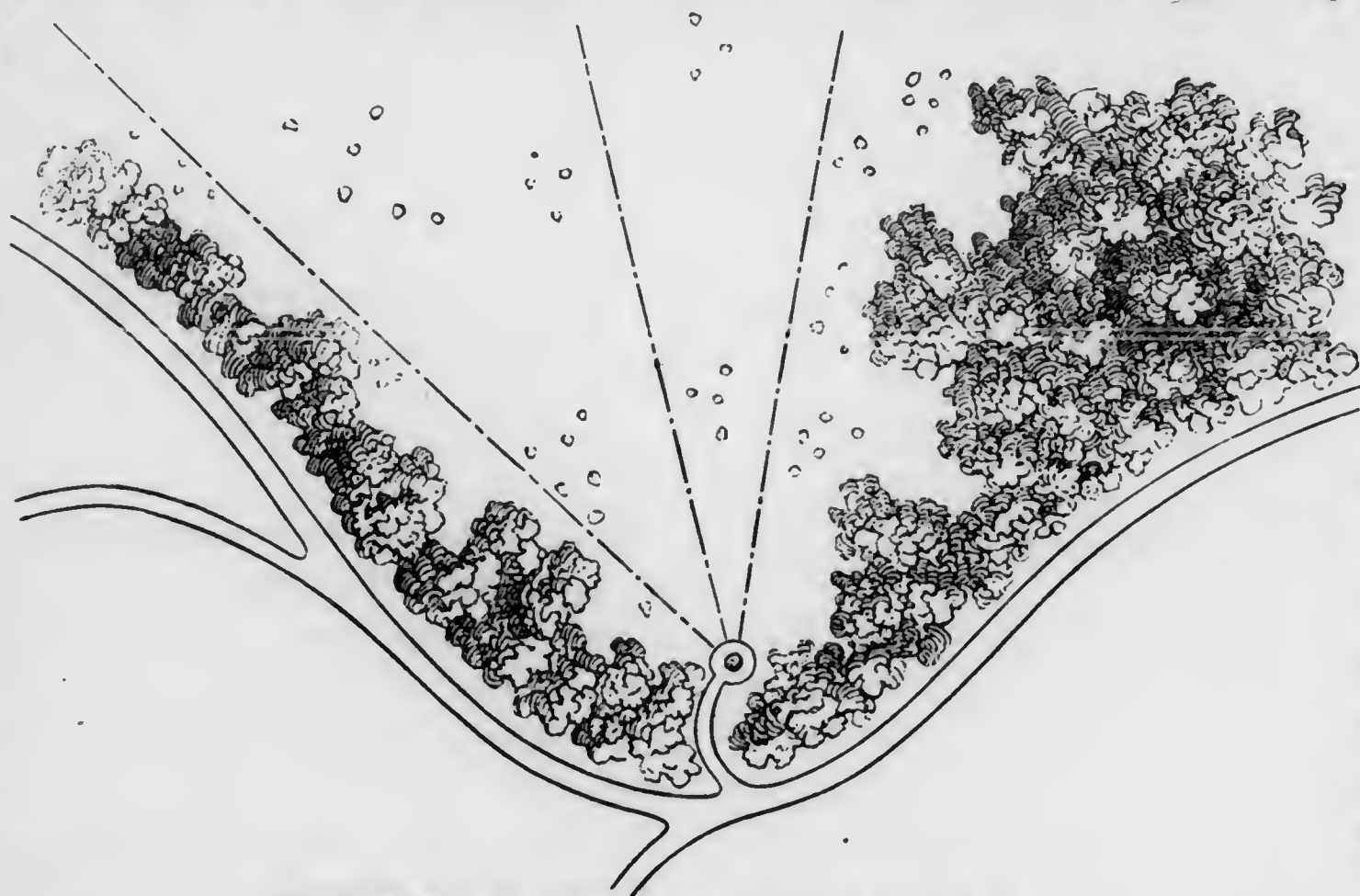
Hyacinths, Tulips, Liliums, and other hardy bulbs set out in the fall, and covered through the winter, should be occasionally examined, and when they show signs of active growth, must be uncovered; in this latitude this is not safe until towards the end of the month.

Most things have been pruned, but Roses are always left to "see what damage the winter may do." In the "summer" roses, or those which bloom only once in the season, the rule is to thin out the weak shoots and leave the stronger ones, merely shortening their tops. If pruned severely in the usual shortening style, they will not bloom freely. The hybrid perpetual roses,

if wanted for early flowering, should also be served much in the same way; but as their chief value is as fall flowers, a severe pruning now produces a vigorous fall growth; bears large and luxurious blooms.

The Tea,

China, Bourbon and Noisette roses which flower best on young wood, should be well cut in.



GROUND PLAN OF AN EUROPEAN PARK SCENE.

COMMUNICATIONS.

THE COMPARATIVE HARDINESS OF CERTAIN JAPANESE LIGUSTRUMS.

BY SAMUEL PARSONS, JR.

In a late number of the GARDENER'S MONTHLY, pp. 354, I notice C. E. P.'s queries as to the hardiness of Ligustrums Ibota and coriaceum, and the best methods of protecting them. The Ligustrums in question, possess about the same degree of hardiness as the Ligustrum Japonicum, of which indeed coriaceum may be termed a variety. During moderate winters, a light covering of evergreen boughs, or a sheaf of straw bound together at one end, placed loosely over the plant and tied to a stake will generally suf-

fice to save these Privets. The simple object must be to repel the injurious effects of cold winds, sleet and sun, during the hard freezing and frequent thaws of early spring. For the same purpose, a light mulching of hay or straw at the foot of the plant is beneficial. All such methods as binding up tightly with straw, covering with barrels, etc., are dangerous. The plant may thus die for want of a circulation of air during extreme cold. There is a wide-spread ignorance of the best methods of protection for half hardy plants, and, in consequence, even our half hardy plants do not succeed as they might under wiser treatment. I understand the term half hardy as indicating a capacity to live out of doors during some winters with due protection. In spots like parts of Greenwood Cemetery, Brooklyn, N. Y., it is surprising to observe sometimes the tender plants that will survive uninjured the severest winters. No artificial devices can protect plants as thoroughly as such sheltered spots.

Sometimes I wish there was no such term in vogue as "half hardy." People led away by the expression, are all the time trying to partially expose certain plants only to lose them. Even so-called experts will persist in planting out these Ligustrums, Aucubas and the like as far south as Baltimore and Washington, with little better success than we have about Philadelphia and New York. As I have already remarked, it is the severe changes of late winter and early spring that kill them and not biting cold. Horticulture would be positively benefitted, if people would never attempt to leave these half hardy plants out. As it is, many become more or less discouraged with all planting. Failure must in time, dampen their enthusiasm.

Let me refer your readers to the description of a temporary structure for a cheap protection of half hardy plants by S. B. Parsons in the GARDENER'S MONTHLY. Only by this method, or by the use of pits and cellars for protection can half hardy plants be satisfactorily enjoyed.

Acacia lophantha, we have found less hardy than the above named Ligustrums, which are indeed among the most enduring plants usually classed as half hardy. Frequently, Acacia lophantha stands the winter tolerably, if protected by masses of evergreen trees. For hardiness, however, it as well as A. julibrissin, is greatly inferior to the beautiful Japan Acacia Nemu, which has stood for some years perfectly well in Central Park, New York.

ORIGIN of FUCHSIA LORD BEACONSFIELD.

BY EDWIN LONSDALE, GERMANTOWN, PA.

In reply to C. E. P., who asks for information respecting the origin of Fuchsia Lord Beaconsfield in the MONTHLY for February. It was raised by Mr. John Laing, Stanstead Park Nursery, Forest Hill, near London, England, and is the result of a cross between F. fulgens and one of the modern varieties known as "Perfection." It was exhibited at some of the meetings of the Royal Horticultural Society first, as Laing's Hybrid, in '75 or '76.

The color of the flower reminds one of the good old Speciosa, and is frequently,—or I may say generally—taken for that variety by casual observers. It was exhibited by me before the Germantown Horticultural Society, at the June meeting in 1878, as a new plant, but that august body, the committee on awards, refused to recognize it as such, declaring it was "nothing but old Speciosa." It differs from that good old sort in several particulars; notably in its free flowering qualities, and the length of time it blooms, being under proper treatment in flower the whole year round. It may be urged that Speciosa flowers free enough, and continuously if properly treated, and so it does, but his lordship does more so, and the size of the flowers of the latter variety is twice that of Speciosa.

I agree with your correspondent "that it is one of the best and most free flowering of the new varieties;" but what constitutes a new variety? I see some of the catalogues of the present year are heralding Fuchsia Champion of the World, as a new one, and charging \$1.00 each for it, when to my own certain knowledge it has been in commerce for at least ten years. Then why re-issue something that will not prove of permanent value?

A TALK ABOUT COLEUSES.—BY ONE OF THEMSELVES.

VERSCHAFFELTII.

Only a few years ago, not one of the Coleus family had a place in the gardens of Europe and America, and I have been told, that in our absence gardeners depended chiefly upon plants with showy flowers for ornamenting their gardens and grounds. When some of my remote relatives were introduced, numerous were the surmisings as to what place they should occupy amongst cultivated plants. This was especially so in the case of Perilla Nankinensis, a plant of

most sombre hue, but so striking withal as to attract general attention. Some looked upon it as the forerunner of a class of plants destined to play an important part in the future, whilst others regarded it as a vile weed. Nevertheless, considerable attention was bestowed upon its cultivation for a time; but ultimately became so neglected as to be met with chiefly as a garden weed. This may have been owing in some measure to the introduction of *Coleus Blumei*, which species was regarded with greater favor, and at once took a place which it held fairly well for a time, or until he whose name I bear obtained from it varieties so novel and brilliant in color, as to entitle them to rank high amongst the time-honored favorites of the garden.

From the most reliable information, I infer that this species at least is one of my immediate ancestors, and whether I owe as much of kinship to any other has not been made known. But this I do know, from the day I was first introduced to the public in my chocolate and violet-colored suit until the present time, I have been praised as few plants have been. But being neither envious nor vain, I have desired the company of those whose colors are brighter than my own, as variety in harmony gives greater satisfaction than any one can singly bestow. Some of the older varieties are well fitted to produce this effect, and none more so, perhaps, than my old friends *aurea marginata* and *golden circle*; but the majority of their class either lack expression, or are so delicately constituted as to become perfect "frights" when planted out of doors.

During my time, many varieties with excellent characters when in my company have performed their parts but poorly, whilst others have had enough to do to keep up a doubtful reputation. It was with pleasure, therefore, I hailed the arrival of a fresh set from England a short time ago, headed by George Bunyard, who, with his companions were so highly spoken of that I hoped one or more of them would prove of service to me. But this hope has not been realized, and to-day, for all of them, I am as destitute of support as I was before their arrival. Poor George,—after being much in his company for a season, it is only fair to say, he performed his part so poorly that I hope, for the credit of both, we shall never meet again under similar circumstances.

What the incoming season may bring forth yet remains to be seen, but at present the prospects are good for a grand display, as a new or-

der of aspirants are being marshaled for duty, whose merits, some say, are such as to eclipse the old members of our family, and even take from me the honors I have enjoyed so long. Should their claim be well founded, I shall surrender my right to the first place without regret, and be even glad to take any subordinate place I may be deemed competent to fill. But should they fail to meet the expectations thus produced, it will be my duty to remain at my post until such time as new varieties are found, regarding whose merits there can be no doubt.

Be it understood, that what has been said about my associates has reference only to them as bedders; for it is well known, many varieties when grown under glass, and partially shaded from the glare of sunshine, possess greater brilliancy and beauty than I lay claim to. For this reason, I think those so constituted as to require the protection of a greenhouse, should be sparingly, if at all, planted out of doors, and the outside department exclusively occupied by such as attain their greatest perfection in free air and the full tide of sunlight.

Before closing this monologue, I am forced to say a word in behalf of a plant seemingly possessed of extraordinary capacity for the work in which I excel. I refer to *Acalypha Maccaffeana*, the leaves of which are large and finely formed; color, reddish-brown, and irregularly blotched with bright shades of crimson. When fully exposed to sunlight it looks as if "on fire through all its length," and being much more stately than myself might form the central figure in a group of *Coleus* or other plants with the greatest acceptance.

THE CARDINAL FLOWER.

BY A. G. MOORE, BERLIN HEIGHTS, O.

Last Summer was the first I ever saw the Cardinal flower under cultivation. The ground was made very rich, while there was a *Caladium esculentum* in the back ground, so it had plenty of water. In its native state it has some three or four inches of leaves on a single spike at a time, but this more than doubled it, and as the flowers withered below, it threw out side branches which flowered, so it had flowers below and above at the same time, and kept in bloom over a month. While it has not the delicate beauty of the Purple Fringe Orchis, is not gay like the Rhododendron, graceful like the *Deutzia*, nor sweet like the Pink, it shows its color well. They are easily transplanted after forcing.

EDITORIAL NOTES.

LILIES.—As a general thing the Lily is not a success in most gardens. This is however chiefly from improper soil being used, or their being put into improper situations. The plants rather like the open sunlight, but the roots abominate hot ground, especially when stiff or clayey. In Professor Sargent's grounds at Brookline, Mass., they are planted with the Rhododendrons, and are a magnificent success. Here the Rhododendrons shield the bulbs from the hot sun. It is besides an excellent idea as a mere matter of garden taste, for the Rhododendrons are all over blossoming before the Lilies flower, and so the flowering of the beautiful evergreens seems to be prolonged till late in the summer, when the lilies disappear.

DISFIGURED LAWNS.—The *Farm Journal* notes: "Germantown, where the editor of the GARDENER'S MONTHLY resides, a suburb of Philadelphia, is admitted to be one of the most beautiful towns in the country. It contains almost numberless charming residences, and nearly every place has a front and side yard, more or less extensive. But just now the town is fearfully disfigured by the practice, almost universal, of spreading manure upon every grass plot, so that Germantown presents the appearance of a vast collection of cow-yards, lacking only the cows to make the picture complete in its ugliness. It is a pity people will not learn to use concentrated fertilizers to enrich their lawn and door-yards."

AMERICAN PLANTS IN ENGLAND.—The singular neglect of our beautiful American trees in England, seems to extend to our pretty herbaceous plants. Sir Joseph Hooker, in a recent number of the *Botanical Magazine*, says: "It is indeed astonishing that the Asters, *Helianthus*, *Rudbeckias*, *Silphiums*, and numberless other fine North American herbaceous plants, all so easily grown and so handsome, should be neglected in English gardens, and this in favor of carpets, hearthrugs and ribbons—forming patterns of violent colors which, though admired from being the fashion on the lawn and borders of our gardens and grounds, would not be tolerated on the floor of a drawing-room or a boudoir." This is the just appreciation of the value of hardy plants which one might expect from a traveler who has seen so many of the most beau-

tiful and distinct of hardy plants "at home" in all the quarters of the world.

IMPROVED POTENTILLAS.—Florists must feel indebted to the *Garden* for showing them in a beautiful chromo, how much beauty there is in these old-fashioned flowers. Much as we know of their merits we did not know that they had been improved so far. They are double as roses, and of all shades of color between yellow, crimson and rose, beautifully striped.

PUBLIC ROADS.—Col. Forney, in a recent *Progress*, gives the following from a clerical correspondent:

"As yet we have no public roads in America worthy of being named with the roads in the old countries. The public highways here are as smooth, and as hard, and as clean, as Bedford Avenue, or the best roadway in either Central or Prospect Park. They are side-drained or under-drained, and directly after a rain there is no mud upon them. They are for the most part kept in repair by districts, and the work is not neglected nor botched. How very different this is from our slipshod methods is grievously well known to all Americans who use private vehicles. The national roads of France are under the care and supervision of the General Government, and as perfect in their way as they can be. It is not to be hoped that our National Government will undertake enterprises of this nature, but State Legislatures might well enough make laws binding turnpike companies and towns to make and keep roads fairly up to the demands of modern civilization."

On this *Progress* remarks: "There is nothing new in all this; nothing that every one of us did not know before, and yet we are slow, very slow, to profit by the lesson it teaches." And we may add that the reason why we are "slow to profit" is that nobody has any plan whereby our roads may be made any better. We know already that "State Legislatures can make laws," but no one tells State Legislatures what laws to make. We in Philadelphia know what sort of laws uninstructed legislatures make, and when a road is to be improved the person who desires the improvement knows to his great cost what is the expense of instructing them.

Now the GARDENER'S MONTHLY has made a proposition for a general law for the improvement of roads. It is, that when a good macadamized road can be made for a certain small percentage (to be fixed) of the value of the land

along which the road passes, the proper road authorities shall proceed, under certain regulations, to make such road. We know many roads in the vicinity, now "mud holes," which could be very well macadamized for five per cent. of the value of the property fronting on them; but as it is now, though half the people along the line might want to have a good road made, it would take no end of time and money under existing modes to get it done. By a general road improvement law such things would fall naturally when the ripening time came.

ROSES IN EUROPE.—We point to our fruit nurseries with their hundreds of thousands of fruit trees with just pride. Europeans equally pride themselves on other things. Speaking of the nurseries of our correspondent, A. M. C. Jongkindt, Coninck, at Dedemsvaart (Dedems Canal) in Holland, a correspondent of the *Gardener's Chronicle* notes that he saw 300,000 rose stocks.

THE JAPAN CLIMBING FERN.—The Japan fern *Lygodium scandens*, has been found much more tractable than its near relative, the *Lygodium palmatum*, or as it is sometimes called "Hartford Fern." The Japan species makes a very pretty thing to train on fancy trellises out of doors in partially shaded places during summer time.

LANTANAS.—We should like again to call our readers attention to the great value of the Lantana as a summer-blooming plant for American gardens. Few things beat it in beauty,—and the hotter and drier, the better it blooms.

THE JAPAN JASMINE.—This very interesting plant, trained on walls in Germantown, was beautifully in bloom on Christmas day. Its value as a frost-resisting winter bloomer is well known in this little town, but we do not often meet with it elsewhere. Botanically it is *Jasminum nudiflorum*.

THE OSAGE ORANGE AS AN ORNAMENTAL TREE.—A correspondent with whom we heartily agree, notes that those who have only known the Osage Orange as a hedge plant, have missed a beautiful sight in a well-grown tree of the Osage Orange.

DOUBLE PORTULACAS.—Those who want something for hot, dry places, that will take fair care of themselves, must look out for double Portulacas. There are now double yellow, crimson, rose, white, striped, and other shades, and they come tolerably true from seed.

THE NOOTKA SOUND CYPRESS.—There is

said to be a specimen of the *Thujopsis borealis* growing on the grounds of Hamilton College, New York. It would be of much interest to know when it was planted, how high and wide it is now, whether it is at all sheltered, and if it ever showed any signs of injury by severe weather. It suffers very much about Philadelphia, and we do not know of one really fine specimen anywhere in the East, unless this one may chance to be.

HOLLYHOCKS.—If there is any part of our country where the old-fashioned hollyhock still thrives, it would be well to know where it is and all about them. From some disease they are seldom seen now in gardens hereabouts.

PENTSTEMONS.—Plants from the western regions do not thrive well, as a rule, in eastern gardens, but the whole tribe of Pentstemons seem to do wonderfully well.

SCRAPS AND QUERIES.

FARM GARDENS.—An Ohio correspondent writes: "It is surprising to see how little the isolated farmer cares about the beautiful in nature or art. There seems to be a sad lack of intellectual attainments, home comforts, and refinement. With all the means within reach, to make home pleasant within, and the surroundings attractive outside, they absolutely ignore them, and appear to neither know of nor care about them, and are content to exist without sharing the truly good and useful things which God so abundantly gives. So different are the conditions in and about old settled towns and cities, that a dweller therein can scarcely understand how much the people vary in habits and views of life, in comparison with the denizens of the secluded plantation or farm, when almost the only literature, besides the quacks' nostrum almanac which enters the house, is confined to the false teachings or miserable drivel derived from some wretched political newspaper.

"Happily is it that the picture does not portray all the features of farm life everywhere. There is both an obverse and reverse side, on which may be seen the enterprising and intelligent, and often scientific husbandman. And such are what you or I would consider the true *beau ideal* of what a farmer should be. And such are they who can see and understand there is something in this world besides a place to grovel in, and can find time to read and profit by the MONTHLY and such like magazines."

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

COOL ORCHIDS AND THEIR TREATMENT

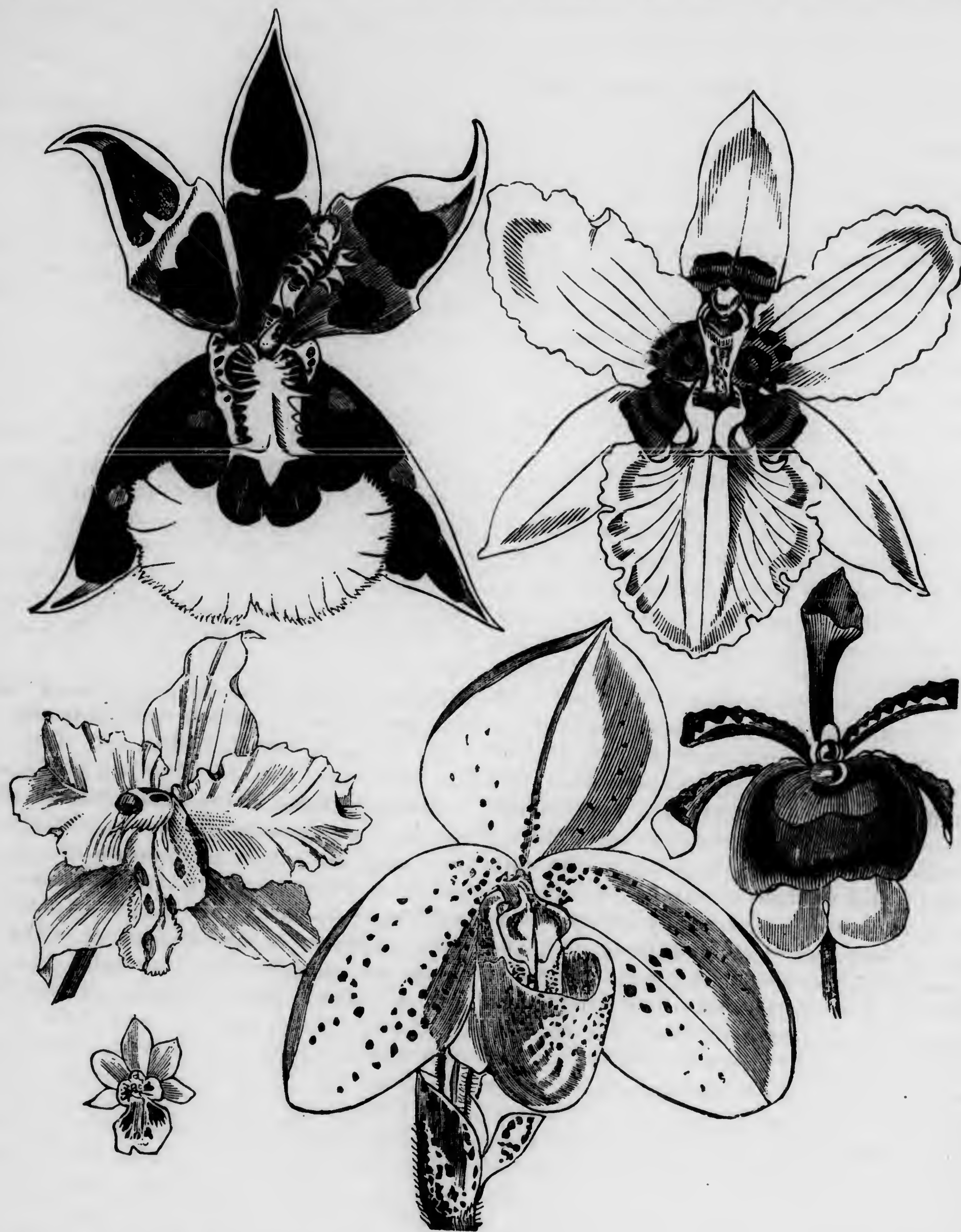
BY MR. J. GRIEVES, PATTERSON, N. J.

Orchid blooms are justly celebrated and well known as the most beautiful of all flowers. Their marvellous and fantastic shapes have earned them such names as the butterfly, swan, lizard, dove flower, etc. When these strange plants unfolded their delicate petals for the first time in Europe, they gradually attracted the attention of almost every one interested in plants and ultimately the general public also. But unfortunately an idea was introduced with them, that they all required excessive heat to grow them, and this has been generally accepted as truth ever since. No matter where a plant might have come from, or under what conditions it grew naturally; whether in the humid valleys of India, the arid regions of South Africa, the mountain chains of Mexico or Peru, or even the snow line of the towering Andes, their treatment was all the same, they were placed in the hottest temperature at command, which then, and even to-day often means the driest. Under these circumstances thousands of fine Orchids were killed, but occasionally producing a few flowers as the last effort of expiring nature; thus the difficulty of their growth and management became established and promulgated. With our present knowledge and experience the only wonder is that so many survived. Still the old idea of excessive heat is rigidly adhered to by many, although we rarely find Orchids enjoying vigorous health in such places, while in the comparatively few places where cool Orchids are cultivated in real earnest, they may be found enjoying the most luxuriant health. It has been my good fortune to see some of the finest collections in Europe of Odontoglossums, Disas, Oncids and Masdevallias, etc., that have been subjected to a cool system of treatment ever since they were imported, and I have yet to see the first lot, or know of them in fact, having been killed or even permanently injured under the most trying circumstances by this system of cool treatment. It is surprising that a correct idea did not sooner prevail, considering that such cold-bearing plants as Calceolarias, Verbenas,

Lobelias, Fuchsias, Bambusas, Rhododendrons and many cool growing plants, were found in the same regions as the Orchids. While travelers in Mexico have noted that at a certain season, early in the morning ice was invariably found in the hollows of the leaves of the Agaves growing in close proximity to the Orchids, yet our information principally has come from the failure of the heating apparatus seconded with the investigating experiments of amateurs and others. In 1852 M. Francois Josst, at Tetchen in Bohemia grew several Orchids out of doors, where the temperature several times fell as low as 41° F.; but instead of the plants suffering, they grew more vigorous and several of them actually flowered, and he gives a list of over seventy varieties so treated. M. F. Van Driessche, of Ghent, in 1862 followed with a similar experience; and later, Williams, Warner, Anderson, Dr. Patterson and others have proved that very many Orchids grow well in a low mean temperature, while to the healthy growth of numerous varieties it is absolutely indispensable. The health and success of the plants does not altogether depend on the temperature; there are three other important conditions not however requiring much skill: 1st. Plenty of air, moist, not dry; 2d. If potted, give porous, well-drained fresh compost and moderate shade, avoiding long exposure to strong sunlight; 3d. An abundant supply of moisture, in absolute plenty, both at the roots and in the atmosphere, as it is impossible to kill Orchids by having too much moisture in the atmosphere, while hundreds are annually killed by being grown in one too dry. Many orchids not considered cool, with these essential conditions granted, will not only bear a mean winter temperature of 45° to 50°, but will make active vigorous and luxuriant growth in it; proving that with any reasonably rational treatment they are anything but difficult to manage. But stagnant damp in winter is more fatal than cold, and some air must be provided for even in winter. The variation of night and day heat of cool Orchids should not exceed 10° except by sun heat, which may range from 15° to 20°. Water with cool rain water, and only on the roots, and not on the foliage; let that draw sufficient moisture

from the air. Water as little as possible in the winter consistent with preserving the plants in a plump, healthy condition. There being several degrees difference in temperature between com-

Orchids are the most abused unfortunate class of plants I know of; as being hard to kill, the next choice is to keep them sick by too much (mistaken) kindness. In practical culture a very



post that is wet and that comparatively dry, protect from cold draughts and the aridity of the air in sharp frosty weather, which is much to be feared, especially if grown in a room.

strange fact is that many cool-growing varieties of orchids grow best in decaying vegetable matter, deriving sustenance from it, notably Odonoglossums and Masdevallias; even the West In-

dia Dendrobiums do best in turfy peat and chopped moss, although true Epiphytes (or air plants) in their natural haunts. Most of the Cypripediums will grow in turfy loam, but the more fibre it contains the better. But with these, as with all other composts, free riddance of superfluous moisture must be provided for, otherwise any compost will become quickly sour, and then the roots will decay. But if fresh and open, and the drainage perfect this can never happen. Those on blocks should be plunged into soft tepid water until thoroughly saturated with moisture at their roots, that is, all healthy growing plants. When stopped growing or evincing a tendency to rest, gradually withhold water, allowing only enough moisture to prevent shriveling. For cool Orchids in pots the best compost is good fresh fibrous peat with one-fourth partially decayed cocoanut fibre, or in lieu thereof well dried horse droppings, with one-eighth part chopped live sphagnum moss, and a liberal quantity of coarse well-washed river or other sand, not fine, half filling the pots with crocks covered with small broken charcoal for drainage, next a layer of moss and then the prepared soil finished off with moss at top. The pot and all the materials being sweet and clean. Good culture simply means not thwarting but assisting Nature's efforts, and those who do this most will succeed the best. Those who do not watch her efforts carefully will seldom succeed for any length of time, even with good instructions and the best materials, and appliances for perfect success, unless following some accepted treatment. Such as the following: keep the sphagnum moss on the pot tops and blocks growing as fresh and freely as if in its native swamps. For wherever we find sphagnum, Dionæas and Dorseras, growing freely on the top of the pots, we also find the Orchids growing green and healthy; simply because the Droseras, sphagnum, will only grow in a moist, moderately shaded situation. The same conditions being also necessary to the vigorous health of the orchids.

The following species and families all furnish some very showy and fine varieties of cool and intermediate orchids thriving well in a temperature of 40° to 50° Fahr. as a minimum, and only requiring from 60° to 70° as a maximum temperature. Space will only permit the naming of one or two of each family. Some being notably cool, or fine varieties of intermediate kinds, although not the scarcest, costliest or choicest;

yet such as are readily obtainable at moderate prices:

Acineta Barkerii.	Dendrobium chrysanthum, nobile, etc.
Ada aurantiaca.	Epidendrum cuspidatum, vitellinum, etc.
Ærides crispum, odoratum, etc.	Lælia anceps, Perrinii, and others.
Angræcum falcatum.	Lycaste lanipes, Skinnerii, and many others.
Anguloa Clowesii, uniflora, etc.	Mesospinidium sanguineum, Vulcanicum
Ansellia Africana, etc.	Miltonia spectabilis and all the varieties.
Arpophyllum giganteum and spicatum.	Masdevallia amabilis, coccinea, etc.
Aspasia lunata.	Odontoglossum cirrhosum, Alexandra, and almost all of this fine family.
Barkeria elegans and Skinnerii, etc.	Oncidium aurosum, cucullatum, and others.
Bletia Sherrattiana and Tankervilleæ.	Trichopilia tortilis, etc.
Brassavola Pectorei, etc.	Zygopetalum aromaticum, Mackayi, etc.
Cattleya amethystoglossa and Mossiæ, etc.	
Chysis aurea and lævis.	
Cœlogyne barbata, cristata, etc.	
Cymbidium Darganum, Mastersii.	
Cypripedium barbatum, insignis, and many other varieties.	

In some of the above families, the varieties could be extended into dozens that might all be grown cool with advantage to the plants, and satisfaction to the grower.

[We are much obliged to Mr. Grieves for this article, and have given illustrations of some of the more popular genera, that those who are not well acquainted with orchids may see how curious they are.—ED. G. M.]

DESTRUCTION OF GREENHOUSE INSECTS—THE PETER HENDERSON PRIZE ESSAY.

BY JOSEPH A. DAVIS, JERSEY CITY HEIGHTS, N. J.

The following article is offered in competition for the \$25 special prize offered by Peter Henderson, for the best essay on prevention and destruction of insects under glass:

There are few of the insects that attack plants grown under glass, but such as are to a greater or less extent injurious to the gardener; but in this, as in all other ills that affect plants, prevention is of more importance than cure. One of the most common insects attacking plants is the Aphis or Green fly. In any well regulated greenhouse this should never be seen, for a complete prevention is tobacco, either in solution made by steeping the refuse stems in water until of the color of strong tea, and syringing it on the plants twice a week, or in the form of dust or snuff, which after syringing may be dusted on the plants; or by burning the dampened stems twice a week, in quantity of, say (1) one pound to every 1000 square feet of glass. This last is rather the best method where greenhouses are

detached, but when the conservatory is attached to the dwelling, either of the two former will answer.

The next best known enemy to plants under glass is the Red Spider, always found in greatest abundance in a hot and dry atmosphere. When a good force of water is obtainable, so that plants can be syringed by hose, there is little excuse for this insect, for it cannot exist to do much injury where leaves can be forcibly washed by water. When there is not sufficient head of water to syringe by hose, the next best thing is some form of garden engine or hand-syringe, in addition to which the paths and under the branches should be copiously watered so as to counteract the aridity of the air consequent from fire heat. The fumes of sulphur is also destructive to red spider, but this can only be safely applied by painting the hot water sides with sulphur, or if the greenhouse is heated by flue, it is only safe to do so at the cold end, for if sulphur is volatilized in a temperature much higher than 200° it will injure the leaves.

The next insect in importance as injurious to plants under glass is the mealy bug, a pest which has made rapid increase in nearly all greenhouse establishments, of late years, owing to the immense increase in the growing of plants in high temperature for the forcing of flowers in winter. The usual method has been the tedious one of rubbing the insects off with a soft brush; and until recently the scores of substances with which we have tried to destroy the insect either failed to do so, or else in ruining the insect they destroyed the plant. I say until recently, for there is now a certain remedy known as "Cole's insect exterminator." This put on with a Barber's atomizer at once kills the mealy bug, without injuring the most delicate or tender plant. The serious objection to the "exterminator" is its price, which is upwards of \$2.00 per quart. A quart, however, is sufficient to go over at least 1000 square feet of plant surface, as it is thrown out by the atomizer in spray fine as mist.

The Black Rust on verbenas, heliotropes, petunias, etc., is caused by an insect known as the verbenas mite, too small to be visible without a microscope. This, like nearly all other parasites that attack plants, is rather a consequence than a cause of disease, for we find whenever plants are neglected, by being pot-bound, or by insufficiency of water, or any other cause that lessens the vigor of the plant, it is more likely to be attacked. It is thought that

the fumes of sulphur, given out by painting the sides, is destructive to it, but of this we are not certainly assured. There is but little doubt that this insect spreads quickly, and it is safest when plants are affected to at once throw them out, for if seriously affected they rarely recover.

Ants are often troublesome in greenhouses. A simple remedy is to steep pieces of bread or sponge in some solution of sugar. They will leave everything else for that, and soon thousands of them may be thus caught and destroyed.

Snails are often destructive, as they usually keep under the benches during the day and come up to feed on the leaves at night. I have found that salt strewn along the edge of the table was a complete barrier to their getting at the plants from below.

The Thrip is a troublesome insect, appearing in quite a number of varieties on different plants. The same directions may be given for its destruction as for that of the red spider, though in such plants as cannot be reached by the syringe there is nothing for it but sponging the leaves, or else in using the "exterminator" with the atomizer, as is done with mealy bug.

The Carnation Twetter,—so-called for want of a better name,—is an insect but little known, as its ravages are often ascribed to red spider or thrip, but it has no resemblance to either. Its presence is indicated on carnations or pinks (we have never seen it but on plants of this family), by the end of the shoot having a slight curve or twist. If this twist is carefully unfolded, the insect will be seen varying in length from the sixteenth to thirty-second part of an inch, and as thin as the point of a fine needle. It is either green, yellow, or black, according to its stage of development. In many places it has completely destroyed, year after year, the whole crops of carnations. It is believed to be fostered by growing the plants in too high a temperature, as we find it makes but little headway under 50°. I can give no remedy except the general one, to stimulate by manure water, or by any other means plants so affected into a vigorous growth, so, as it were to outgrow its ravages.

I now come to the Rose Bug, the insect that of all others is of interest at the present time, owing to the vast quantities of roses grown under glass, but as the subject has been recently so thoroughly discussed, I can say but little new in the matter. The rose bug, so-called, is in the perfect insect about the size of a large house fly, of a leaden-grey color, resembling in appearance

somewhat the curculio that attacks the plum tree, but larger. It feeds on the leaves of the rose plant for probably a month in this stage, and then goes down and deposits its eggs in the soil. These in time develop into maggots, which at once begin to feed on the roots of the rose plant. This is its destructive stage, and a rose plant cannot long retain its vigor while this pest is sapping at its vitals. When the insect is in the maggot stage, it is believed there is no remedy. I have tried to kill it with a dozen different things that are usually destructive to insect life, with no effect whatever. The only remedy then, is to catch and kill the perfect insect on the plant. Professor Riley has suggested that folded strips of paper be inserted close to the stem of the plant in the soil, as he has discovered that the insect deposits its eggs in the rough bark near the surface. This I tried, but so far with no results, as no eggs were found in the traps so set. There is reason to believe that many failures of roses to do well is in consequence of this pest at the roots. When this has been ascertained to be the case, there is no remedy but to take them up at once and throw out every particle of soil wherein they have been grown. It is easier to manage the pest when roses are grown in pots, then, if affected, there is no necessity to sacrifice the plants if taken in time. Some of the most extensive rose growers grow their roses in pots, so as to have full control of the rose bug. Their system is this: After growing the plants in the flowering pots during winter, they are taken from the greenhouses in May or June and stood outside and kept rather dry until August; the ball is then shook and every particle of soil rinsed or washed from the roots. This, of course, carries off every egg and insect also adhering to the roots, and the plants are potted in fresh mould and are then entirely clear of the pest. I have seen many thousands of plants so treated that are now (November) growing luxuriantly and flowering in greatest profusion.

GLOXINIAS.

BY C. E. PARNELL, GARDENER TO W. D. F. MANICE, Esq.,
QUEENS, L. I., NEW YORK.

As the Gloxinia is one of my favorite flowers, I was very much pleased with the practical article on their cultivation in the December number of the GARDENER'S MONTHLY. I also noticed the remarks of Mr. Fyfe on the rust to which the Gloxinia is so subject, as it has caused

me a great deal of trouble and annoyance, as well as the loss of the best part of my collection. But after many experiments I was enabled last season to grow all my Gloxinias perfectly free from rust by adopting the following method. As soon as I noticed that they were commencing to grow, which was about the 10th of May, I turned them out of their pots and repotted them in a mixture of one-half leaf mould, the other half consisting of loam and charcoal broken fine, in about equal proportion, taking care to give good drainage, and also to keep the top of the bulb on a level with the surface of the soil. I then take a cold frame and spade up the ground inside the frame. I then plunge all the pots in the frame, taking care that the tops of the pots are on a level with the ground. After the pots are all plunged, I water the ground so as to fasten the soil around the pots, then put on the sash and whitewash the glass so as to retain the moisture. In a short time there will be a fine healthy growth, and in the course of two or three weeks, air should be given by raising up the sash at the bottom. On hot days the sash may be raised about four inches, and on cooler days about two inches, and in rainy or wet weather the sash had better be closed. The plants must be watered as often as they require it, and when the flowers commence to expand the plants can be removed to the greenhouse. If the rust should make its appearance, remove them back to the frame at once. As soon as the plants cease flowering, they can be brought back to the frame, and the amount of water given should be gradually decreased. On the approach of cold weather, the plants can be brought into the greenhouse and placed under the stage or any place where the thermometer ranges about 50°. The pots containing the bulbs must be laid on their sides, as if the soil is allowed to get wet the bulb may rot. During the growing season the plants must be looked over occasionally, and shifted as often as necessary, and on no account must they be allowed to become pot-bound, for if once they become pot-bound, they soon become sickly and the prey of numerous insects.

To cultivate the Gloxinia successfully it requires a warm moist atmosphere, a temperature ranging from 60° to 75°, a slight protection from the full force of the sun, and in watering give only enough to supply their wants. When the pot is filled with roots, shift into a larger size,

and give air so that the plants do not become weak and drawn.

I wish it to be understood that these remarks are not intended as a criticism on Mr. Fyfe's excellent article, as he has had more experience in plant cultivation than I probably will ever have, but as one of your correspondents inquired in the June number for a remedy for the rust on Gloxinias, I thought that my experience would be of some benefit to him.

EDITORIAL NOTES

DREER'S NEW COLEUS.—The beautiful strain of Coleus raised by Mr. H. A. Dreer, we understand is to be placed on the market this spring.

HEATING BY MAKING LIME.—Some years since greenhouses were to be heated by the waste heat from limekilns. It was a good idea, but it does not seem to have made much headway. Probably those who would like to save the heat do not care to go into the lime-selling business, while those who now make the lime and lose the heat know nothing of the greenhouse management. There surely ought to be something in the idea if the horticultural and lime-burning intellect could be evolved from our brain.

As some attention is being again given to the subject, through some of the Philadelphia papers recommending the heating of the Exhibition Buildings by this plan, we reproduce an illustration we once gave of the plan, as it has in a measure been forgotten.

It will be seen that the figures *a, b, c*, simply

indicate the arrangement of an ordinary limekiln, while the other letters indicate the portions of a saddle boiler with its flow and return pipes over the top of the kiln.

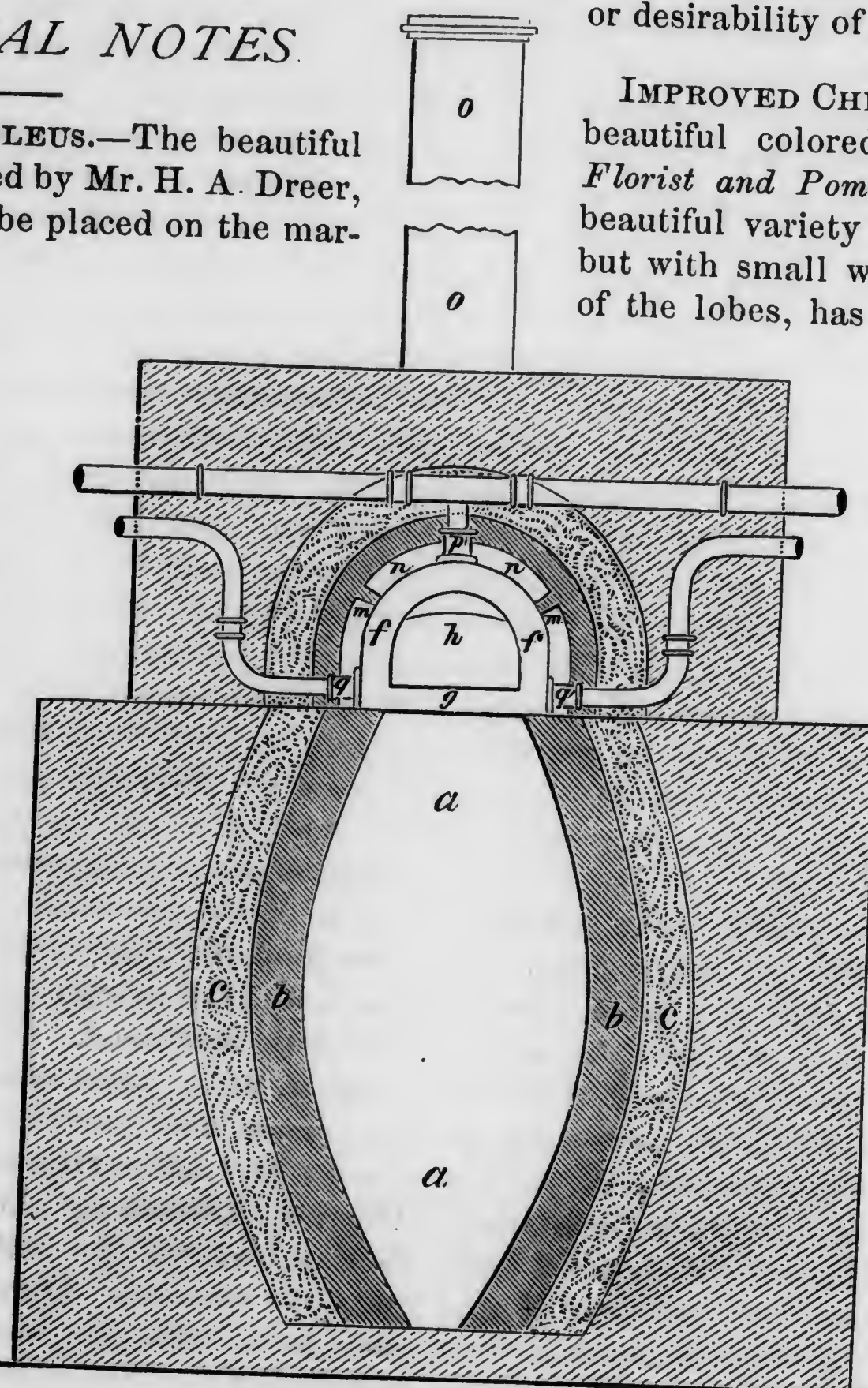
Although this twenty-acre building could probably be heated in this manner, it might not perhaps be very agreeable to the frequenters of the beautiful Fairmount Park to have a "nasty lime market" with its main depot within its boundaries. However, it is for us to show what may be done,—for others to entertain the practicability or desirability of applying it.

IMPROVED CHINESE PRIMROSES.—By a beautiful colored plate in the London *Florist and Pomologist*, we learn that a beautiful variety with bright rosy flowers, but with small white spots on the margin of the lobes, has been produced. It has been honored by the title of *Primula sinensis purpurea punctata*. This of itself ought to attest its princely value, for the scions of most royal houses have a dozen or so of names, though even these cannot often boast of long Latin ones.

DRIP IN GREENHOUSES.—Many plant houses injure plants by permitting the condensed moisture or leakage to drop—to drip as gardeners say. To avoid this a groove is made at the end of the rafter or the

rafter, which conveys the moisture without letting it drop. Steep houses are less liable to injury from drip than those with flat roofs.

A PRETTY BOUQUET.—It was a very pretty bouquet that was presented by the ladies of Bethlehem to the Editor of the *GARDENER'S MONTHLY* at the conclusion of his little talk on window gardening at the recent annual meeting of the State Horticultural Society. Fronds of



HEATING BY A LIMEKILN.

the maiden hair fern rested on the lace bordering. Above this dark heliotrope, mignonette, and dark carnations, lightened by white ageratum. Rather lighter colored flowers followed, such as Bon Silene rose, La Purite carnation with double white primroses, and other lighter flowers interspersed, still carrying through the ageratum. Towards the centre were the lighter colored roses, carnations, with a more plentiful supply of mignonette, but with the ageratum decreasing in quantity. The grading of the dark colors into the light, and of the ageratum into the mignonette was very good indeed, and the whole a very successful effort of design in bouquet making. We learned that it was made for the ladies by Mr. O'Neill, gardener to Mr. Krause, of that city.

SCRAPS AND QUERIES.

DISEASE IN GREENHOUSE PLANTS.—"Subscriber," Syracuse, N. Y., writes: "Being a constant reader of your valuable MONTHLY, I would like to ask of you a little advice. I notice as I go from one greenhouse to another, that there are a great many plants, such as Carnations, Bouvardias, etc., that seem to damp, or rather rot off just at the neck of the plant. Could you inform me of the remedy, or what is the cause?"

[This is caused by a parasitic fungus at the roots, closely allied to the fungus which produces the yellows in the peach. It is too late to apply a remedy after they are in the house. The fungus is at work all through the Summer. In the case of the carnation you can readily detect

it when growing out of doors by the yellowish color of the foliage as compared with the normal green. We have heard that watering with lime water is a good remedy, but have not tried it.—Ed. G. M.]

GERMAN METHOD OF MAKING FLOWERS BLOOM IN WINTER.—G. H., Yarmouth Point, Mass., says: "I read in the *GARDENER'S MONTHLY* of 1862, p. 330, "German Method of Making Flowers Bloom in Winter." I put in a piece of lime about the size of an English walnut, and one about the size of a cherry to a quart of water each, and about one-third of an oz. of vitriol, but removed the lime and water before adding the vitriol water; it failed to bloom or leaf out. I put in lilac and other free-blooming shrubs. Please answer in next month's *GARDENER'S MONTHLY* why it failed."

[The article referred to was contributed by a highly intelligent lady botanist,—the late Elizabeth Morris of Germantown, and we know no more of it than that. It will be observed that she had herself some doubt of it, as she remarked, "I will not vouch for its success."—Ed. G. M.]

FORCING LILIES.—S. F. T., Saratoga Springs, writes: "I would like to know about forcing *Lilliums candidum* and *longiflorum*. How long it takes from the time of potting to flowering, soil, heat, etc? I wish you could make it convenient to issue the MONTHLY semi-monthly."

[We should be very glad if some of our readers who have had some actual experience would favor us by a reply.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

There is nothing more certain, from cumulative daily experience, than that a great proportion of the diseases of fruit trees come from the roots being in overheated soil. Species growing naturally in mountain districts or high elevations, where the summer temperature of the earth is little above 55°, find themselves in places where the sun pours on the soil for eight or ten hours a

day, heating it to 80° or 90°, and which results in "enervating" the vital powers and in making the plant a prey to all sorts of diseases. This is one of the great evils of what is known as clean culture in many places, and does as much as the actual mutilation of the roots to injure the prospects of the orchardist. Yet in all discussion about cropping orchards *versus* clean culture, we rarely see it alluded to. It is owing to this overlooking of an important point that so much differences occur among the "Doctors." One has

a clean cultured orchard which does very well, and another one where it does not at all. Possibly the one lies to the full sun, the former on a shady slope. So one has an English gooseberry which never mildews, while with another it is good for nothing,—neither knowing that a gooseberry never mildews when the soil is not too warm.

But we must to more practical hints, and would say that in choosing a site for an orchard, always, if possible, get a position where the ground is not exposed to the full midday sun if you are living in any warm place. Of course as our readers get towards the north pole they will invite rather than shun the sunny rays.

Besides orchard trees, small fruits in many cases like cool soil. People often complain that their currants drop their leaves early, in which case they don't mature a very large crop the next season. The currant is a native of cool regions, and the coolest ground should always be devoted to it. The leaves do not fall early then. In this section the currant borer is the worst insect pest. About this season the larvæ will be found in the pith, and the shoots containing them should be cut off and burned. If the shoots look weak and starved, like on plants, which have some of them very strong and vigorous, it is quite likely they have the larvæ of these borers in the weak ones. This can then be determined by examination.

In setting out raspberries and blackberries, remember the hints we have before given, not to set out deeper than the plant grew before. A currant or gooseberry set deep will root from the cane, but a raspberry will not. The new buds have to come up from the roots. Thousands of these plants die every year. In nurseries there are two kinds of plants,—plants which are simply suckers, taken off in winter, and plants taken up as they sprout during summer and set out to grow awhile before fall. These are called transplanted plants, and are worth much more than others. Transplanted plants seldom die. Both raspberries and blackberries should be cut down within six inches or a foot before planting. Transplanted plants may be left longer, and be allowed to bear a little; but if these plants are allowed to produce much the first year after setting out, the suckers for next year are very weak. Little is gained by having fruit the first year.

Strawberries, like raspberries, are often destroyed by planting. Only the fibrous roots should be set under the ground,—never the bud.

Sometimes the excuse is that the plant will not set firm in the ground without; in this case, make the ground firm by rolling or beating down before planting.

Grape vines in the open air, on arbors and trellises, should have their pruning finished before warm spring days set in, or they will bleed. It does not injure them much, but it looks bad. The pruning must be regulated by the condition of the vine. If the vines are young and the shoots weak, cut them all back, to make a new and vigorous growth. If already a fair quantity of strong shoots of last season's growth exists, cut out the weaker ones, so as to leave enough of stronger ones. The cane system, slightly modified, is best for arbors and trellises in the hands of amateurs generally. This implies a new set of canes every year or two. If, as frequently happens from bad management, all the young and strong-bearing wood exists only at the end of the vines, and these latter have become nothing but long, ropy-looking apologies for what a vine should be, the whole cane may be buried down in the soil to where the strong shoots spring from, and the young wood of last season trained up from this. The plant will then recover its good appearance quite as well as by cutting down, with the advantage of not sacrificing a year's growth of fruit. Grapes that have become weak from age may be renewed by layering down a branch some feet just under the surface, and then cut back, so that one good eye only be left at the surface of the soil.

Apple trees in orchards are often so thickly matted with branches, that none of the leaves get their full share of light and air. This should never have been permitted, but as it is, a vigorous thinning out should be effected, though the axe and saw be called in to effect it. Sprouts will come out thick next summer after such pruning, but they should be torn out while green.

Peaches, it is said, grow too strong generally, and should not be pruned; but the same rule holds good as with apples. Thin out all weak or crowded shoots. Our experience is that if a peach tree's constitution is not impaired by bad treatment, it seldom grows too strong for its own good.

This is a busy season south of Pennsylvania in the vegetable garden. Here we must wait till the end of the month, and northward still later. The crops noted will, of course, be dependent on the arrival of the season, which is rather indicated by the ground becoming warm and dry, than by

the almanac. It is very important to have crops early; as soon as the ground is, therefore, in good condition, put in the seed. Possibly a cold rain might come and injure them, and you may lose, and have to make a new sowing. Even so, it is but the loss of the seed and labor, while if the seed do not die, the early crop will more than repay that risk.

Deep, rich soil, now so generally condemned for fruit gardens, is of the first importance here. Soil cannot be too rich or too deep, if we would have good vegetables. It is, indeed, remarkable, that in many respects we have to go very differently to work to get good fruits than we have to perfect vegetables. While, for instance, we have to get sunlight to give the best richness to our fruits, our vegetables are usually best when blanched or kept from the light. So, also, as we keep the roots as near the surface as we can, in order to favor the woody tissue in trees, we like to let them go deep in vegetables, because this favors succulence.

In the open ground, peas and potatoes receive the first attention; then beets and carrots; then lettuce, radish, spinach, onions, leeks and parsley. Beyond this, unless in more favored latitudes than Pennsylvania, little can be done until the first week in April. There is nothing gained in working soil until it has become warm and dry.

Celery for the main crop will do about the end of the month, but a little may be sown now. We have never been able to make up our mind whether there is such a thing as an absolute solid variety of celery, and whether pithiness in any degree depends on soil or culture. Certainly we buy all the most improved "solids" every year, and never yet found one satisfactory throughout. We cannot say which is the best of the many candidates.

In the hot-bed, pepper, egg plant, tomato and cucumbers may be sown, and in a cooler hot-bed frame, Early York cabbage, cauliflowers and celery. Those who have not got a hot-bed can sow a few pots or boxes, and keep them near the light in a warm room.

In addition to sowing of the above, onions, leeks, parsnips and parsley must be sown at this season,—not for the main crop, but to have a few in advance of the rest. To keep over the winter, almost all kinds of root crops become tough or coarse if sown too soon, so that for such roots as beets, carrots, etc., only a few early ones should be sown now.

COMMUNICATIONS

THE JAPAN PERSIMMON.

BY H. C. F., SANTA BARBARA, CAL.

I send you to-day by mail a can containing two Japanese Persimmons. Perhaps you have seen the fruit before, if not, it will no doubt interest you. It is now fruiting in many parts of California, this being the third year in this vicinity, and the little tree seems to be a constant bearer, and as yet untouched by any pest or disease. It is no doubt a fine acquisition to our best of fruits. I think it will soon prove a source of profit in the dried product. The fresh fruit is too astringent until it is quite soft or near decay, but eaten in the latter condition it is delicious.

I am sure that some varieties could be grown in our Northern States by grafting or budding upon the American Persimmon. I have a small botanical garden, and am experimenting with everything that I can get that I think will be adapted to the conditions of our climate, which is so favorable to the plants of all lands except the extra tropical.

[These are the first fresh fruit we have tasted. At the first bite it seemed that we had tasted our Eastern Persimmons as good,—after a while some uncertainty grew, till we finally concluded they were far superior to our own.—ED. G. M.]

EDITORIAL NOTES.

SLITTING THE BARK OF TREES.—The *Connecticut Farmer* is alive with this controversy. In a number before us one correspondent declares that "the God of nature has taught them (trees) how to grow," and contends that the bark could slit of itself if it were proper to be done. He does not say that he leaves his finger nails or his hair to grow as "the God of nature" made them. Mr. N. Coleman, a well known botanist, and at the same time a practical fruit cultivator, tells a different story in the same paper. Trees that have been top grafted, and thus have their heads cut away, are very likely to become "hide-bound," by the sudden loss of so much foliage required to feed so many cells, and Mr. C. has found from actual experiment the great value of vertical bark slitting,—an advantage to be gained in no other way. This accords with the experience of many cultivators. There are many cases where the bark of trees

becomes indurated, and it requires a great expenditure of force on the growing cells beneath to push this band outwards. By slitting this hardened bark much of this waste of force is saved.

VARIETIES OF VEGETABLES.—One would hardly suppose there were so many varieties of vegetables as there are, until they examine some such a catalogue as that of James H. Gregory, now before us. We hear once in a while from the pea raisers with their hosts of kinds, but not much in other lines. Mr. Gregory, among his annual offerings has twenty-three kinds of bush beans, and nineteen of pole beans. Of so simple a thing as a beet, he has thirteen kinds, and then to think of thirty-six kinds of cabbages! That man who recommended pepper, salting, and then throwing the cucumber out of the window, might tell us which of the twenty-eight kinds here noted be referred to. We may select even in our sorrows as in our joys, for surely these seventeen onions would not all produce the same sort of tears. There are crocodile tears, lovers' tears, tears of remorse, and other tears, and no doubt an onion suited to each and all. The common parsley, simple thing as it is, gives us a choice of six kinds. Of squashes, potatoes, tomatoes, and so forth, we can hardly venture on.

MODELS OF NOXIOUS INSECTS.—In Europe a brisk sale goes on with cheap models of Colorado potato beetle. People who want to know their enemy when they see him, do not mind a trifle to get a private view of their foe. It might be worth thinking about by people in this country who are disposed to make an honest penny, though not of course with the potato beetle which all know too well already.

FIRS AND FIGS.—One of the most remarkable studies is the "agricultural departments" of some newspapers which believe that "selections" can be made by "anybody," and thus save the expenses of careful editing. Just now going the "rounds" in this particular class, as a fact, is the following: "The fir tree flourishes in California. It starts easily from cuttings and commences to bear the second year." We have no doubt that the original writer wrote "fig," and not fir, but how should the office boys know the difference?

THE HUSBANDMAN.—Mr. Walter Elder remarks that "there is scarcely a branch of sci-

ence, but is of more especial interest to the cultivators of the soil, than to any other class of the community," and he points out the great value of all these studies, whenever time can be afforded for their pursuit. Entomology, botany, minerology, meteorology, philosophy, conchology, geology, chemistry, geography, anatomy, as well as many others he enumerates as of great value to the farmer and gardener, and he well asks, "what other pursuit can bring so many in as useful studies?"

LENNIG'S WHITE STRAWBERRY.—Mr. E. P. Roe, in *Scribner's Monthly*, gives this white strawberry the high praise it deserves for its flavor. It is however one of that border-land class between staminate and pistillate, which often produces too many abortive flowers, and so is frequently a very poor bearer.

LARGE ORANGES.—We do not know the size of the largest oranges produced in America, but the *London Gardener's Chronicle* gives the following account of some large ones produced in England: "We have received from Mr. James Wood, seedsman and florist, of Newport, Isle of Wight, a couple of large oranges, which together weighed 2 lbs. 8 ozs. The largest one weighed 1 lb. 7 ozs., and measured 18 inches in circumference. Mr. Wood states that they were grown with two others of about the same size on a tree about 3 feet high, and 2 feet in diameter of branches, standing in a cool house from which frost and damp are excluded by the use of fire-heat. They are very handsome as decorative objects, but quite useless for dessert."

GRAPES FOR PROFIT.—Some vineyards in California last year are said to have realized a profit of \$300 per acre. We suppose this is about the best that can be done, and would-be-rich viticulturists must expect that this is rather what they possibly may do, rather than what they will.

CALIFORNIA ORANGES.—The papers tell us of a grower who received \$50 per 1000 for his oranges, and expects to market 400,000 next year at these figures. It seems very high. We can buy the best of oranges at retail in Philadelphia for five cents each. Californians must pay more for an orange than we do. They had better emigrate to these parts and live cheaper.

STRAWBERRIES IN SCRIBNER.—*Scribner's Monthly* has done a good thing in bringing the "Strawberry" before the great public, in a prettily illustrated article from the pen of E. P. Roe.

In easy but yet graceful style, Mr. Roe tells what he knows of the famous berry, and we are sure has interested thousands in the subject who scarcely gave a thought to the subject before. Articles like these do a world of good.

CALIFORNIA RAISINS.—The *Riverside Press* tells us that one firm received \$794 for the raisins made from 890 grape vines,—and that the total expenses were \$478.88. This only gives a net profit of 12 cents per vine. It is not inordinate, and as it is looked on as a good thing, it shows that some California newspaper figures may probably be relied on. Yet twelve cents from one vine, say every 16 square feet, makes about \$300 profit to an acre, which is doing well enough in these hard times.

THE LADY WASHINGTON GRAPE.—We hear that this fruited last year in Georgia, and maintains a good character there.

PEAR GROWING IN THE SOUTH.—An intelligent fruit grower from Georgia, recently remarked that if only the fire blight could be conquered, Pear growing would be far more profitable than growing Peaches.

PEACH GROWING.—Some one in Georgia, whose name we have not, planted two hundred and eighty bushels of peach stones last fall. He evidently has faith that peach growing is not yet overdone.

THE ALLEN PEACH.—This is another new candidate for earliness. Mr. Bateham believes it is two weeks earlier than Hale. It is an Ohio seedling.

THE SCHUMAKER PEACH.—This is said to ripen between July 1st, to July 3d, in Fairview Township, Erie Co., Pa., where it originated, and instead of the usual "ten days" notice to the other early peaches to get out of the way, this gives "three to four weeks" notice to the Amsden and Alexander. Of course we give only what is said of it, having had no chance to hear the tale as told by itself.

APPLES IN ILLINOIS.—Mr. A. R. Whitney commenced orcharding in 1843. He has 16,000 bearing trees on 150 acres. His heaviest crop was in 1876, when he had 26,000 bushels. Insects are his chief trouble. He keeps his orchard in grass and feeds it with sheep. For summer and early fall he likes the Red Astrachan and Snow; for fall and early winter, the Bailey, Sweet and Maiden's Blush; for winter and spring, Dominie, Jona-

than, Willow Twig, Ben Davis and Wine Sap. For these facts we are indebted to the *Farmer's Review* of Chicago.

WINTER APPLE FOR PENNSYLVANIA.—Among the remarkable experiences of the recent meeting of the Pennsylvania Society was the fact that when some one wanted to know what varieties of apple should be generally planted, no one seemed ready with an answer. The Smoke-house was named, but the support as a general favorite seemed feeble. The York Imperial also had some admirers.

THE BEST STRAWBERRIES.—A New Jersey grower gives the following list of what he regards as the best of those varieties that have been thoroughly tested,—Charles Downing, Cumberland Triumph, Monarch of the West, Seth Boyden, and Wilson. Some of the newer ones may or may not be better than these.

THE WETHERBEE RASPBERRY.—This new candidate for popular favor, like so many in the past, claims New Jersey for its home. It is a red variety.

GREEN ASPARAGUS.—People often say they do not care for white asparagus, because it is tough, that they want nothing but green heads for their table. But it is only when the asparagus first comes from the root stock that it is tough. When deep underground, as in the sandy soils of New Jersey it can be planted without injury, the white part is not tough towards the summit, but as soft and tender as the green part is usually deemed to be. When the white is tender and soft, there is no comparison for sweet delicacy of taste with the green heads in the mind of the epicure.

LAXTON'S MARVEL PEA.—This is regarded as one of the best of Mr. Laxton's crosses. In England it has produced from eight to ten peas in a pod,—and the flavor is said to be very fine.

THE TURBAN TOMATO.—This is a singular form, or perhaps a distinct species. The fruit is borne in large clusters, and are in form something like the ordinary turban squash. In size the fruit is not much inferior to the common tomato, while the flavor is said to be peculiar and agreeable. It comes to us from Germany.

WHITE JAPAN CUCUMBER.—It is said that this variety is pure white from the time of its formation.

SCRAPS AND QUERIES.

THE BEST GRAPE.—In a letter before us the writer says he has tried twelve of the grapes "everywhere recommended as the best," and after half a dozen years of trial, does not regard any but the Concord to be worth growing in New Jersey. Then at the recent meeting of the Pennsylvania Society at Bethlehem, Mr. Thos. N. Harvey stated that he had tried, a very large number, and would discard all but Concord and Clinton. We have not got down to this yet. We see everywhere about us people who raise other varieties to great perfection, and we are ready to believe that the failures are due to causes which can be remedied.

PERMANENT WHITEWASH.—P. E. Cobden, Ills., asks: "Can you tell me through the MONTHLY what to add to lime wash to make it stick to young trees through a rainy season? I find whitewash a good protection against rabbits as long as it adheres. Have used glue in it without helping much."

[We have never before been confronted by this question, but it may be noted that washes of lime are used by plasterers in Philadelphia

who employ tallow, which is stirred into the lime while it is slacking, and in that way mixes very well with it. The coloring matter is generally mixed with the lime at the same time. We have known these washes remain on walls for many years, and they would probably remain on trees the same way until the coating cracked by the growth of the trunk.—ED. G. M.]

GRAFTING PEAR ON PYRUS JAPONICA.—"Quince" asks: "What has become of this project? I tried a few, but they all died the year after grafting, though I verily believe it was the Pyrus suckers that helped to do the deed. But then how are we to keep these sprouts down, for it would seem the Pyrus japonica could not live without root suckering?"

VEGETABLES AND BEAUTY.—A correspondent insists that the beauty of American women has increased immensely since he was a young man,—now many years ago,—and he believes that this has arisen from the more general use of fruits and vegetables. We hope the elderly ladies will forgive us for stating that the wretch who wrote this had a Philadelphia post mark to his letter, and may not perhaps have had experience in other places. ~

FORESTRY.

EDITORIAL NOTES.

SCARCITY OF WOOD IN PENNSYLVANIA.—Peter Kalm, on his visit to Philadelphia in 1748, says then that wood was so scarce for fuel in Pennsylvania that it brought eighteen shillings a cord, Pennsylvania currency, and that the citizens were seriously alarmed for the future supply of wood for the city. Coal had not then been discovered, though it was being talked about as likely.

CATALPA KEMPFERI.—We have yet letters insisting that the dwarf, flowerless Catalpa is *C. Bungei*, and the lobed-leaved flowering one is *C. Kämpferi*. All we can say is that this is clearly not the case as the plants are described in De Candolle's *Prodromus*, which until we have better authority we must accept as the law.

WOOD OF THE PAULOWNIA.—In making up the census reports, Prof. C. S. Sargent is anxious to get more information about the value of the Paulownia as a timber tree. If any one has a tree that has to be cut down for any purpose, he would be glad of the log, and would of course pay expense of transportation. Write to him before sending, as he may have more offers than he needs.

CATALPAS.—F. W. M., says: "This timber is said to be better for posts than Locust. Can you give me some information about it? Is there more than one kind of Catalpa, and does one kind spread rapidly, and is that the valuable sort?"

[The Catalpa is a first-rate post timber, but we have our doubts about it being "better" than Locust for posts. No one wants a better post

than a Locust post. But the Locust suffers materially in some parts of the country from insect depredations; and again the Locust is almost worthless where nailing is required. The nails draw in hot weather, or rather by the cold which follows hot weather, as the wood does not shrink as the nails shrink. In railroad sleepers the spikes draw out in the fall, and cannot be tightened again. We do not know whether the railroad companies who are interested in Catalpa planting have tested this point or not, but we suppose they have. We have seen posts of Catalpa with hinges for heavy gates exposed to the full sun for some years without any sign of drawing out; so far we think it safe.

There are two species of Catalpa. *C. bignonioides* and *C. speciosa*. So far as we know there is not the slightest difference in the value of the two as timber trees. Indeed all, or nearly all of the merits of Catalpa as a durable wood is derived from the older known form of the Eastern States. It is claimed for Catalpa *speciosa* that in the extreme Northwestern States; say Minnesota, and Northern Iowa, it endures the winters rather better than Catalpa *bignonioides*. There are other differences, such as early blooming, beauty, and so forth, which entitle it to attention from the lovers of ornamental trees, but we do not know of any other advantage claimed for it in its relations to the timber question.—ED. G. M.]

OUR ROCKY MOUNTAIN EVERGREENS.—Mr. Robert Douglas has issued a catalogue in which the nomenclature fixed by the recent careful researches of Dr. Engelman is adopted. It is gratifying to note this cheerful acquiescence of a nurseryman in botanical decisions, because the lack of this virtue in the trade generally, and especially in the English trade has led us into endless trouble with the names of our plants, and often leads to a purchaser buying things over again under various names.

It ought to be generally known that the rule for plants' names is that the first person who shows wherein a plant is new, and describes and names it in any reputable scientific publication, shall have the privilege of naming it. This name stands against all that may come after it. Subsequent names are synonyms. Now, very often the wrong name will prevail for some reason, and though the error is known, people dread to change for fear of confusion. But it is generally found that the time comes

when some one or another digs up the original name, and insists on the law of priority, and more trouble comes from going back then, than if the courageous step had been taken when the error was first discovered. Thus it has been with *Abies* and *Picea*. We have tried to tolerate the error for years, but have to come back to the track at last. Mr. Douglas while giving the correct nomenclature also gives the synonyms, so that no confusion can arise till people become accustomed to the change. We give below his account of them which will be of interest to those studying Rocky Mountain forestry.

Picea Engelmanni, Engelm. (*Pinus Commutata*, Parlat.)—This beautiful tree is the most alpine of all North American Spruces, growing in the Rocky Mountains of Colorado, at an altitude of 12,000 feet. It grows from eighty to one hundred feet high, with a strict pyramidal habit and pleasant glaucous coloring. The wood is white, soft, free from knots and resin, easily worked, and of great value. This species will be found an invaluable acquisition for the Northern portions of the United States, Canada, and the North of Europe. Even at St. Petersburg it has proved perfectly hardy.

Picea pungens, Engelm. (*Abies Menziesii* of the Rocky Mountain flora, or *Abies Menziesii* Parryana of the *Gardener's Chronicle*.)—This species has been tested at various points on our Northwestern prairies, enduring a temperature of 30° below zero without injury, and also very extensively near Boston, where it has stood out entirely uninjured during the last sixteen years. This is not only one of the hardiest but the most beautiful of all the Spruces.

Pseudo tsuga Douglasii, Engelm. (*Abies Douglasii* of Colorado.)—Raised from Colorado seed, this fine tree has proved itself perfectly hardy in the very low temperature and severe winds of the Northwestern prairies, and in Eastern Massachusetts, where it has stood entirely uninjured during the last sixteen years, although plants raised from seed from the Pacific coast are quite tender and unable to endure our winters.

Abies Concolor, Lindl. (*Picea concolor*, Gordon.)—This includes *Abies grandis* of the California botanists. *A. Parsonsiana*, *A. Lowiana*, *A. lasiocarpa* and *amabilis*.

The seedlings offered have been raised from seed collected in the Rocky Mountains, in Colorado, and will, without doubt, prove hardier

than those raised from California seed. The Colorado form, with its larger leaves and lighter color, is even superior from an ornamental point of view to the popular California tree.

Pinus ponderosa.—We have had the seeds of this tree from the Pacific slope under several names, but in every instance the seedlings failed to endure our winters. The trees from our

Colorado seeds have stood the past six winters without the slightest injury, and we believe it to be perfectly hardy. "As seen in the mountains of Western America, *Pinus ponderosa* is the most magnificent of all North American pines. It produces heavy and very valuable timber—the yellow pine of California, Colorado and New Mexico."—C. S. S.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THOSE CATALPAS AGAIN—AN INQUIRY.

BY PROF. ROBERT MILLIKEN, EMPORIA, KAN.

The great interest we on these treeless plains of the far west have in the success of forest tree culture, is my excuse for referring to the matter of the varieties of the catalpa.

There seems to be some confusion regarding the identity of certain varieties which at times we think we have settled, and then again we hardly know.

About two years ago, in conjunction with Mr. John C. Teas, of Carthage, Mo., I undertook to investigate the character of the *speciosa*, to if possible, determine its botanical position, whether a species or only a variety.

Under date of May 20th, 1878, Mr. Teas after writing at some length such facts as had come under his observations regarding the *C. speciosa*, says: "Then I have another *Catalpa*,—new—from Japan; not in bloom for two or three weeks yet. Of this I am anxious to learn the name. I suppose you have it in your books, and can easily make it out from specimens I could send. It is also an exceedingly vigorous upright grower, and I think will make a most valuable timber tree,—surely so if its wood possesses the imperishable quality belonging to the other catalpas."

Again June 6th, of same year, Mr. Teas sent leaves and flowers of several kinds of catalpas, and wrote of the Japan variety: "It seems a rather difficult matter to settle upon the correct specific name, but I hope you may be able to make it out. I had the trees in 1866, from my friend Mahlon Moon, of Morrisville, Penna.,

grown from seed imported from Japan, by Hovey & Co., of Boston. I had also what appeared to be the same, about the same time from France, as Bungei,—very incorrect, as Bungei is a very dwarf kind. [Why incorrect?—Ed.]

"The trees grew rapidly, and bloomed soon. When Mr. Moon's trees bloomed he thought it inferior to our native species, and so grubbed out his stock entirely. We let it stand, but did not regard it of any special value, until we thought of using it as a timber tree. It grows with about, I think quite double the rapidity of the common catalpa, and when it gets up to a good size, it is a good ornamental tree. I raised trees here in 1871 from seeds from the trees I had in 1866 in Indiana. These planted five years ago, in village lots are now 25 feet high, 7 to 8 inches in diameter, more upright than the common catalpa, and fully twice as large as those of same setting. The Japan is a more profuse bloomer than the common, and the panicles are of larger size. Two we counted had 380 and 404 flowers, and buds to bloom. Plenty more as large. The flowers are a little smaller than those of the common,—1½ to 1¼ inch diameter each way, color and markings same, only more color and less white, and the white less pure and clear. But the great profusion of bloom and large size of the clusters make the trees in bloom a magnificent, gorgeous sight, and the flowers are quite fragrant.

"The common seems to vary in regard to fragrance, but I have never found any even approaching the Japan in this respect. The leaves though generally shaped a good deal like leaves of the common, vary considerably. Many are lobed, some on one side, and some on both,

and the lobes generally, though not always, end in a sharp acute point. The seed pods are very distinct, being remarkably slender, though of about the usual length, only about the size of a goose-quill. Seeds also quite small; one pound containing 50,000, while a pound of the common only go a little over 20,000.

"Several to whom I have sent it incline to call it Kämpferi, but it is very unlike what we have for Kämpferi, from Rochester, and which I think correct. Plants ten years old, nine and a half feet high, and forty feet in circumference of branches at four or five feet from the ground; innumerable stems like a great old currant bush. Top dense, almost even, and smooth as a clipped hedge, though never cut; leaves small, dark green and glossy; twigs slender. No bloom yet, though have watched carefully for several years. I think it will be nice worked standard high, but for timber, might as well plant gooseberry bushes. Some one suggest that our Kämpferi may be Bungei, but I think that is still more dwarf,—stouter in its twigs."

At another time Mr. Teas sent me some small trees of *speciosa*, Japan and Bungei, as he has them, and wrote regarding them.

"It (the Japan) probably belongs to the Kämpferi section, but is altogether distinct from K. itself. I have no Kämpferi, but enclose a few seeds which I suppose to be K. I bought it in France for Bungei, and what I now send you as B. I bought at Rochester as K."

Now Mr. Editor, the more we study this question the less we seem to know about the identity of kinds. Is this Japan catalpa of Mr. Teas Bungei or some new kind? And is the dwarf one *C. Kämpferi*?

An answer will remove a good deal of confusion at present existing, regarding the proper names of these different species.

[We have received this since the note in our "Forestry" department went to press. We would simply suggest to our friend that when "the more we study the less we know," it ought to indicate that we have been studying in the wrong direction. The best direction to study a botanical question, is in the line of botanical authorities. Probably the best authority on this *Catalpa* question is DeCandolle, as already stated. If DeCandolle is wrong, the error has not been pointed out by any botanist that we know of; and we must wait till some one of them does. In the mean time the lobed leaved kind with flowers remains *C. Bungei*, and the

dwarf form of the American is *C. Kämpferi*. There is no mystery about it that we see—Ed. G. M.]

THE PEAR LEAF-MITE.

BY MR. THOMAS TAYLOR,

MICROSCOPIST TO THE DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

In your magazine recently, page 18, Prof. T. J. Burrill, of Champaign, Illinois, is credited as being the first person in this country to discover the cause of what is known as pear-leaf blister. In his article on that subject quoted in your magazine, Prof. Burrill says: "A wide-spread disease of pear leaves in this country and in Europe, is caused by a mite, to which Scheuten, a German naturalist, gave the name of *Typhlodromus pyri*. This was twenty-one years ago. Ignorant of this information the writer during the last season, 1879, rediscovered the cause of this disease, and, it is believed, first announced its occurrence in this country."

The following extract from the Annual Report of the Department of Agriculture for the year 1872, page 113, will clearly demonstrate that I made the discovery Prof. Burrill claims as early as May, 1872:

"*Mites in Pear-leaves*.—In May many leaves of the pear tree were observed to be covered with dark-brown blotches somewhat like a fungoid growth, but upon examination by Mr. Taylor, microscopist of the Department, these blotches were found to be inhabited by small mites almost invisible to the naked eye. These mites appear to run all over the leaves, but especially to burrow in the brown patches, which appear to be entirely eaten out by them. Their bodies are long, cylindrical, yellowish-white, with only two pairs of legs, placed very far forward near the head, and they move with considerable agility. They are also marked with a multitude of rings, and have two long hairs or bristles and two shorter ones on the end of the abdomen. There is a somewhat similar mite mentioned by Packard as the *Typhlodromus pyri*, of Scheuten, which is said to live under the epidermis of pear leaves in Europe, but no mention is made of the brown blotches on the leaf, apparently formed by the mite. In his figure also the head is much more obtuse than those examined in the Department. A thorough drenching with whale-oil soap-suds would doubtless destroy many of them, as their bodies appear to be very soft. All infested leaves, likewise, should be

immediately removed and burnt as soon as discovered."

I see by the *Scientific American* of recent date that Prof. Barnard, of Cornell University, claims to have been the first to discover the mite, and read a paper on the subject before the Scientific Association at Saratoga last August. You will perceive by the dates given in both instances that my discovery was prior to either by some years.

ONE-FLOWERED CANCER ROOT.

BY MISS M. EVELYN HUNTER, SUMMERVILLE, S. C.

I am reminded by the note of Mrs. D. W., Summerville, S. C., in the December number of the *GARDENER'S MONTHLY*, who describes a "Curious Fungi," in form like an English snowdrop, of another curious plant which is known in Virginia to botanists as *Orobanche uniflora*, or popularly, One-flowered Cancer-root. It is also known by the Colored race as Dutchman's pipe. It is a leafless parasite on the roots of trees and shrubs, and is from six to eight inches high, and when it first sends up the scaly scapes from its irregularly knobby root, they are of a delicate wax-like hue, changing from exposure to the air and light to a tough dingy yellow. This plant delights in very shady situations, and has but a very slight attachment by its root, to the substance on which it grows. It is found under pine trees generally, and is in flower in the middle or beginning of May, and soon fades when culled. Barton in his *Medical Botany*, gives a full description of this little plant, and a very accurate plate of it.

ACCIDENTS IN NATURE.

BY MARGID DIGRAM, PHILADELPHIA.

The following paragraph taken from the *Press*, of July 16th brings to my recollection a fallen pine tree I saw back of the little settlement of Green Cove Springs, on the St. John's river, in the State of Florida. The tree mentioned in the paragraph and the one described by me below may have fallen from the same cause. The clipping says: "A young Chippewa hunter was shooting squirrels in the woods that border Lake Huron, in Ontario, when a large pine fell upon him, knocking him down and crushing his leg. He could not rise nor remove the tree which was lying across his broken leg. To lie there and starve to death seemed all that was left to him. In his dilemma

he took out his knife, cut off his leg, bound it up with his sash, dragged himself along the ground to his canoe, and paddled home to his wigwam on a distant island. There the care of his wounds was completed, and he is still alive."

The Florida tree, as I saw it, with the entire length of its trunk closely applied to the perfectly even surface of the ground, had evidently but recently fallen. About seventy-five or eighty feet away from it, and running in a parallel direction, was a sluggish stream with marshy banks densely covered with a variety of trees and shrubs. Pine trees usually have tap roots, but this specimen was an exception. The root corresponded with the ordinary tap root in thickness, but instead of descending directly from the base of the trunk as is its usual habit, it turned at once laterally and ran toward the brook mentioned, which it doubtless reached. The ground from the tree to the brook fell in a very gradual slope, and as this great root grew just beneath the surface, the tree in falling raised many feet of it out of its shallow bed into view. As far as exposed the bark covering it closely resembled that of the trunk.

It remains a mystery to me how the great weight of this tree's seventy feet of trunk could have so long maintained an upright position. When it fell it must have been with but slight noise as there was apparently so little to resist its downward movement. A person standing near it in the line of its descent would have had no warning and death would have come to such an one as it did to the lower section of the Indian's leg as quickly as by a stroke of lightning or a well aimed pistol ball.

EDITORIAL NOTES.

EUPATORIUM, AGERATUM, ETC.—Miss Hunter says: "If A. B. will refer to page 127 of the second volume of Barton's *Medical Botany*, he or she will find the following statement: 'Most of the species of Eupatorium, of which Willdenow enumerates seventy-one, are indigenous to America. Those indigenous to our State are all plain-looking plants, except *E. celestinum*.'

"I suppose there is a different classification, since, as Gray gives *Conoclinium* under sub-tribe 1, Eupatoriæ, and under that head describes *C. celestinum*.

"I can only say, that 'the blue Eupatorium, sometimes called Ageratum,' may be a green-

house plant with A. B., but something very closely resembling it is a native plant with us. It is useless to confirm the assertion already made that E. Hunter is no botanist."

[We usually allow considerable latitude to our correspondents, and it is well understood that because we admit anything into our columns, it does not follow that we approve either of the matter or manner of the writer. We may, however, say here for the comfort of our fair correspondent, that though making no pretensions as a botanist, she need not be worried at not readily seeing the difference between *Ageratum Conoclinium*, *Eupatorium*, *Cœlestina*, and perhaps other genera, for botanists of high repute have so tossed the species about from one to another that one hardly knows what is right or wrong about them. At present (it is only safe to say this, for no one knows how long it will be so) the blue greenhouse plant is *Ageratum Mexicanum*, and the hardy one, much like it in appearance, is *Conoclinium cœlestinum*. As Miss Hunter truly says, they have all been Eupatoriums in the past.—ED. G. M.]

EFFECT OF COLD ON INSECTS.—*Psyche* for January contains a highly interesting paper by W. H. Edwards on the effect of cold on insects. The chrysalids of *Papilio ajax* were frozen in a temperature of about 32°, and kept in the ice for many days. The ones exposed but fifteen minutes emerged on the forty-third day after exposure, while those exposed nineteen hours did not appear till the ninety-sixth day, and the proportions were just about the same in the cases between the fifteen minutes and the nineteen hours; concluding, Mr. Edwards says: "That the effect of cold is not simply to precipitate the emerging of the winter form, making the butterfly which would naturally leave its chrysalis in the succeeding spring to emerge in the season in which it fed as a caterpillar, is evident from the fact that the shape is always that of the summer form, while the markings are of the winter form. Those chrysalids which go over the winter, on the other hand, do not have the summer form, but the winter, and the markings agreeing thereto, just as in examples in nature. On these the cold has produced no effect whatever."

BLUE SALVIA SPLENDENS.—Mr. Hovey says in the *Garden*, that this is truly blue, and was a sport from *Salvia splendens*, some one in his employ cutting off the blue-flowered branch from the scarlet plant and rooting it.

SCRAPS AND QUERIES.

FOLIATION.—"Inquirer," Burlington, Kansas. So far as known the buds of plants burst into leaf solely from the action of heat on the buds, and the temperature of the earth has nothing whatever to do with the act of foliation. Root action, so far as we know, has to do solely with nutrition,—and we believe has nothing whatever to do with the development of foliage.

THE FLOWERING RASPBERRY.—"Inquirer." This is the *Rubus odoratus*. It is valued chiefly for its fragrant and showy flowers, and not for its fruit, which seems to be produced very sparingly, as is the case with many plants having fragrant and showy flowers. Plants with inconspicuous flowers, and which do not "waste their fragrance on the desert air," are generally the ones which produce seeds the most abundantly.

GEOGRAPHY OF PELLÆA ATROPURPUREA.—In the *Native Flowers and Ferns of the United States*, it is stated that this pretty Fern has been found in Greenland. A friend who has made the geography of ferns a specialty, doubts whether it has ever been found so far north as this.

BUFFALO GRASS.—A. M., says: "I have been looking over the February number of the *MONTHLY*, and think you are mistaken about the Buffalo Grass not growing at Cheyenne, as I saw it at Greeley, midway between Cheyenne and Denver this last summer. I am pleased to see that Mr. Elder was elected superintendent of the National Antietam Cemetery in which I have a strong interest, being a participant of the fearful battle that brought it into existence. He has a fine scope to work on, but very poor soil. Accept congratulations on your increased editorial age."

[The true Buffalo Grass is known to grow on the plains below Denver, but it is doubtful whether it ever gets up into the mountains. All sorts of things are pointed out to travelers as "Buffalo Grass." Oftener than anything else it is a kind of *Bouteloua*. We once knew a very intelligent gentleman who "saw a magnificent field of hemp," which proved to be nothing but luxuriant *Erigeron Canadense*.—ED. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 10.

BY JACQUES.

First impressions.—The Duke of Argyle writes his "first impressions" on coming to America to visit his son and the royalty of Canada. There is nothing particularly striking in his effort, the trees having most struck his fancy. One remark is so true that it deserves to be transferred here, he says: "Might I suggest to my friends in America the possibility of limiting the nuisance of advertisements on the lovely banks of the Hudson. [If he had traveled further other limits might have been suggested.] Every available surface of rock is covered with the hideous letters of some pill or some potion, or some embrocation, or of some application still more offensive, for the ills of humanity. To such an extent is this nuisance carried, that it seemed to me to interfere seriously with the beauty of one of the most beautiful rivers in the world." His grace does not reflect that we are a free people.

The Duke's Article in Fraser's Magazine for December last is a sensible one. His impressions of Niagara are fresh and good. We should have preferred the omission of this sentence, "But the famous Thousand Islands of the St. Lawrence cannot be compared to the analogous scenery in many of the lakes of Europe, and especially of Scotland." He says he caught two salmon of twenty-three pounds and twenty-four pounds respectively, and one of the party killed one of thirty-one pounds. Killing is an Englishman's delight. What is to become of the lands above and far beyond the Falls when they have worn their way far enough back, the writer does not say, but that there will be a catastrophe some day, who can doubt?

Gardening at Hampton Court.—If we are not mistaken, Americans have found a rival to Washington Irving, if not his superior. In a short tale, "A Passionate Pilgrim," by Henry James, Jr., occur many fine and appreciative passages about Old England. Here is a little scene at Hampton Court, where sundry decayed

old ladies find a home by the bounty of the Queen. It would be difficult to paint a word picture of such expanse in so few words: "I thought of the various images of old-world gentility, which early and late must have strolled upon that ancient terrace, and felt the great protecting quietude of the solemn palace. We walked through an antique grating into one of the little private gardens, and saw an old lady with a black mantilla on her head, a decanter of water in one hand and a crutch in the other, come forth, followed by three little dogs and a cat, to sprinkle a plant." The picture, in little, is perfect. We have seen the very same thing, decanter and all.

The North China Herald reporting the return of Prof. Nordensjöld, says there was not a single case of scurvy during his long Arctic voyage owing to the free use of a curious little berry that springs out of the eternal ice and snow during the short summer. It bears profusely, and has a taste like the raspberry, but more acid. The fruit is dried and mixed with the milk of the reindeer, and it can be carried in a frozen state for thousands of miles. There was also used a food made from the whale's hide, which is pickled and used freely during the winter.

Fruit.—Our friends abroad who get a few peaches under glass and on flued walls, will be interested to know that last year the Delaware Railroad Company transported four thousand, three hundred and twenty-seven car loads (not single fruits) of peaches, and six hundred and forty-six car loads of berries, weighing forty thousand tons, and yielding freight charges nearly \$240,000. This is independent of distribution of fruits in other directions.

The Colorado Beetle.—An article on this pest in the *Fortnightly Review*, begins thus: "Colorado, the last-born State of the Union, is little known in England, except in connection with a small insect that had the rare honor of procuring an act of Parliament entirely for itself." It may be doubted if the writer ever saw this pest, which is not so very small, but he thinks it will be easily exterminated.

The Sky-lark.—The Duke of Argyle, in his

notes on America, makes the sensible suggestion that we introduce the skylark, that beautiful songster, and discard the poor little chirping house sparrows. Who will first initiate the plan? Money for it on application.

Country Places Advertised.—There was, not many years ago, an auctioneer named Robbins, in London, famous for the ornate mode of his advertising of mansions and country seats. A wag got up an imitation in which a great advantage was introduced in a N. B.: "The telegraph passes the door day and night." A more recent flourish is the following: "A quaint mansion and appurtenances, draped in the foliage of its stately pines, its ornate lakes abounding with trout and decoying the wild duck to the fowling-piece, wrapped in the amplitude of its lawns and finely-timbered parks, presenting a *tout ensemble* of a country seat, rich in the elite of winged game, intersected by never-failing streams of pure water, hydraulics might here neutralize the aridity of periodical draughts." Who does not want to purchase such an elysium? But it is feared the mania for locomotion gives preference to Pullman cars over the delights of home.

PERFUMES.

BY EMMA B. DUNHAM.

The use of perfumes dates back to the most remote ages. From those ancient times to the present they have been a delight and almost a necessity. The Egyptians burned them as offerings to their gods, and used them in embalming their dead. Their physicians prescribed them as medicines, especially for diseases of a nervous kind. That they ward off contagion is an acknowledged fact. It is affirmed, that "after the destruction of the clove trees by the Dutch in the Island of Ternate, the colony suffered from epidemics unknown before; and in times when the cholera has prevailed in London and Paris, those employed in the perfumery factories have escaped its ravages."

The Orientals used sweet odors profusely, perfuming their wines and their baths. Musk in large quantities was mixed with the mortar used in the construction of their mosques, and the odor was retained for years. It was particularly perceptible when heated by the sun. This imponderable fragrance embodied in various substances in nature, is sometimes called the "life" or "breath," because of its preservative qualities. Odorous blossoms remain fresh much longer than inodorous; perfumed woods last as

long as their perfume remains. Chemists find some odors are easily and quickly extracted, while others require months of patient effort. Some are extremely volatile, while others are retained for centuries.

One of the rarest odors in nature, is the violet. A perfume resembling the true violet has been obtained from the root of Iris of Florence, and perfumers have sold it for the attar of violets. Until within a few years comparatively, the real odor of the violet has never been separated from the flower; it refused to separate its odor from itself; it was to be met nowhere but in its own corolla. But at last the true smelling of otto of violets has been isolated by M. March, of Nice. The alchemist by skillfully combining certain odors obtains a semblance of the perfume of almost every flower. The jasmine alone is unapproachable. The odor of this flower is delicate and sweet, and so peculiar that it is without comparison, and as such cannot be imitated. For this reason the odor is very costly,—fifty dollars per fluid ounce. The late Charles Dickens, alluding to the assertion that the fragrance of the jasmine has never been imitated, says in *Household Words*: "Is jasmine, then the mystical meru—the centre, the Delphi, the Omphalos of the floral world? Is it the point of departure,—the one unapproachable and indivisible unit of fragrance? Is jasmine the Isis of flowers, with veiled face and covered feet, to be loved of all, yet discovered by none? Beautiful jasmine! If it be so, the rose ought to be dethroned, and the inimitable enthroned queen in her stead. Revolutions and abdications are exciting sports; suppose we create a civil war among the gardens, and crown the jasmine empress and queen of all."

Perfumes are obtained more or less from every part of the known world; but perhaps from those countries bordering on the Mediterranean in the greatest abundance. At Adrianople the rose gardens extend over from twelve to fourteen thousand acres, and are called the Rose Farms of the World.

EDITORIAL NOTES.

EDITORIAL LETTER.—Standing in the observatory at the top of the Lucy Linderman Library, on the south side of the Lehigh river, one has a beautiful view of the town of Bethlehem, on the north bank of which the chief part of the city stands. It is

one of the oldest settlements in the United States, and, though bearing an air of moderate comfort in all its surroundings, has yet a population of probably not more than 8000. Yet though not a very large town, its inhabitants have always had a taste for tree planting, and these trees, so many of mature age, growing in many cases far up above the houses, give the town from the point I am speaking, a particular air of beauty I have seldom seen when looking down from some height on other and more recent places. The town has long been famous for its schools; for here education has been in some measure divested of fashionable follies which seem inseparable from school life near more pretentious cities, and for this reason has been very acceptable to some. Numbers of excellent ladies all over the Union boast of their education at Bethlehem, and though first-class schools of the plainer sort have been established in other places, and thus now compete with the older ones of Bethlehem, somewhat to its disadvantage, they are still popular; some 100 being in one which I had the pleasure to visit. Boys will in the future have an equal chance with girls to boast of Bethlehem, since the University of which I am now speaking, and of which this library is a part, was founded by Judge Asa Packer. Starting in life with but a limited education, like many of his class he believed that if he had had more he would have been more useful; hence it is very natural that in his desire to show his gratitude to that humanity on which he thrived, he should see no better way than to give to others forever the advantages of which he himself was deprived. Unfortunately that which comes easy is not often valued, and I could not but wonder how many of the boys I saw studying here at almost no cost, would prove Packers in their turn. Still as one cannot take their riches with them, and most will want to dispose of their treasures where they will do the most good, what is more likely to be of service than institutions where ignorance may be dispelled, the poor or the suffering have their wants relieved, or where the young and unthinking may learn to become self-reliant, and do good to their less fortunate fellow creatures in turn?

The Lucy Linderman Library is another excellent idea. It is a monument erected by a gentleman to the memory of his wife. It is filled with a great number of excellent books, and many young men were in it studying at the

time of my visit. How much more sensible are useful monuments like these, and how much more enduring, than the huge piles of cemetery marble which offend the eyes of people of taste and sentiment all over the land. The grounds around the Institution are being laid out in an excellent manner by Mr. Chas. H. Miller, of Philadelphia, and will do full credit when completed to the tasteful architecture of the University buildings.

Bethlehem is not only remarkable for its well planted streets and "yards," but for its remarkable success in window gardening. I do not remember to have seen any town in which so many houses had window flowers. In most large cities, and in the newer cities that envy the larger ones, the houses of the wealthier are kept dark most of the year round. In the Summer the best rooms are closed to keep out the sun, and in the Winter are so encumbered by upholstery, that although the windows are large enough, only a few square feet of glass get the opportunity to light the room. They are made to look well by gas light, and people rarely go into them by day. But the middle and poorer classes who mostly have houses in order to enjoy life with their own families, are the chief ones who have their rooms gay with plants and flowers, and which keep out the sun and bright light quite as well as the upholsterer's art can do. This the Bethlehem people seem to understand, for, as I have said, window flowers are everywhere,—in the houses of the very rich, as well as in those of the very poor. It was indeed a very pleasant sight for one from a fashion-slave city to enjoy.

Many of the richer people however arrange their plants in side rooms specially constructed for flowers. Small conservatories they are in fact. A very neat one of this sort I had the pleasure to see attached to the house of Dr. Linderman. I suppose it was not more than ten feet square; but the tubs of oranges and lemons, agaves and yuccas, and similar plants, used for summer decoration, were so arranged that it looked very much larger. In it was a small fountain with aquatics, ferns, fish, and other attractions for the partially shaded places, and those which flowered and needed more light were arranged around the windows on the sides. A door opened into the dining room at one end, and another on the opposite side to some kitchen offices by which the conservatory could be reached by the gardener without having to

carry working materials through the better rooms. In this conservatory there was a plant of *Dracæna fragrans*, with several stems, perhaps twelve feet or more high, and which had retained all its lower leaves through the many years it had been growing, and presented a mass of luxuriant foliage wonderful to behold. The gardener, Mr. Thos. Love, was proud of the feat, and well he may be, for I question whether a better specimen of skilful growth was ever seen. If any reader of the GARDENER'S MONTHLY knows of a better one, let the fact be known. Mr. Love besides his superiority as a practical gardener, has high merits as a landscape gardener. The grounds were laid out by him, and are very tastefully arranged.

Many plants thrive here in the mountains which do but poorly in the lower lands, as beautiful specimens of the English Hawthorn and Mountain Ash testify. In different parts of the grounds are plant houses; for instance a greenhouse, fern house, forcing house in which cucumbers were then in fruit, and grapery. Mr. Love is a very successful grape grower. Some bunches of certain kinds have been exhibited in New York of a size to challenge competition. A Bowood muscat has been raised of seven pounds. He regards it as of vast importance that the roots of the vines should be rather dry, and that top air should be given at all times.

Another very intelligent and successful gardener I found in Mr. O'Neil, gardener to L. J. Krause, Esq., who besides nice garden grounds, can boast of one of the most complete barns in this part of the county. Mr. Krause's greenhouses are all small; some of them built wholly by the ingenious hands of the gardener. An interesting fact in regard to rose culture is exhibited in one of these houses. Roses are forced for cut flowers, and are grown in a bank of earth on one side of the forcing house. Half of this bank has air drains at the bottom. The other part is elevated on the solid ground. The part with the air drains has the plants fully one-third better than the other. There are quite a number of small greenhouses, and neat places in the town of Bethlehem; among these are Mr. Smiley's and Mr. E. P. Wilbur's. Extensive grounds do not seem to exist. The cemetery grounds and the many rural walks—and beautiful they are—seem to be the chief out-door gardening experience of the Bethlehemites.

LEPIDIUM FOR BUGS.—The *American Entomologist*, "recognizes the genial Samuel Miller of

Bluffton, Mo., under the initials S. M.," in the article on *Lepidium*, in a recent number. But our good contemporary must try again. It is not yet even "warm." To help it a little we will say it need not search south of the Raritan.

DREER'S COLEUS PLATE.—It is seldom that we notice advertisements in the editorial columns, though we are often asked to do so. We desire to avoid even the appearance of anything being paid for directly or indirectly, which is given as editorial opinions, and which any preference apparently given to one firm over another, might be fairly construed into a paid-for "business notice." But we notice this effort of Mr. Dreer, in order to bring prominently forward the great change in the manner of advertising which is likely to take place. Mr. Penock once advertised in our columns colored plates of *Caladiums*; Mr. Henderson, *Pansies*, and Mr. Scott the *Waverly Carnation*; and now Mr. Dreer follows with the *Coleus*. We believe the money spent in printer's ink for the two pages a colored plate occupies, would not be half as telling as the colored illustrations of the thing itself. We have no doubt this style of advertising will grow.

ADDRESSED ENVELOPES.—It is a pleasant thing to receive a stamp when one desires a reply to a letter, but we must again beg of our correspondents not to send stamped envelopes, with the addresses already written on them. It is extremely rare that a letter can be answered at once on receipt; for often some investigation has to be made. In the meantime a busy man cannot remember that some particular person sent an addressed envelope. We have scores of these addressed and stamped envelopes lying around, and always in the way. It is mistaken kindness to send such things.

CIVILIZATION: IS ITS CAUSE NATURAL OR SUPERNATURAL?—By a "Wayfarer in search of Truth," Philadelphia, Published by C. H. Marot. The doctrines of evolution, which this work attacks, have some bearing on horticultural pursuits; and horticulture considers itself especially interested in the progress; but we find very little in this book that will warrant an extended notice in our magazine. It is more in the way of theologians and metaphysicians. We may however, say that the point of the work turns on the meaning of terms. The author believes that evolution is opposed to christianity; but this depends on what one understands by evolution, and by christianity. From our experience of

the world we should say that there were multitudes who would not accept his definition of either.

It is however, not always easy to catch the meaning of the author himself, for his fondness for illustrations generally ends as they often do with school boys, in obscuring the main points. For instance, speaking of crime and criminals, he observes "If a man has a barren tree in his garden, which draws to itself the nutriment required for the proper growth of useful plants, would he display the most wisdom in attempting to remedy the matter by trimming around among the uppermost branches, or by grubbing the thing up by the roots?" And at once we begin to wonder how the poor sinners among human beings are to be "grubbed up." Whether the cheapest way would be to hang them at once, or whether imprisonment for life would fairly come under the grubbing up idea? After all, the best display of wisdom might be open to some difference of opinion. A gardener once did ask of the great master for leave to try a little of his horticultural skill before the barren fig tree was "grubbed" up,—and the master thought he was wise.

REFUTATION OF DARWINISM, by F. Warren O'Neill, Philadelphia; J. B. Lippincott & Co. By direct ways man has been taught how every thing began; but there is no possible harm in starting from the other end also, and by questioning nature herself, note the correspondence of her answers with what has been revealed to us. There ought to be, and in the end there must be a coincidence between these two lines of thought; but while they are being pursued, one has nothing whatever to do with the other. In asking Nature how varieties, genera and species began, we therefore set aside, for the moment, all that we have been taught, and all that we believe, and await patiently Nature's answer. Here are plants and animals about us, how came they here? Were they always, from the first as they are now? Or have they changed and are changing still? We see from the geological record, that there was a time when there was neither plant nor animal on the earth,—that at a later period only the lowest forms existed,—and that only in the later ages have what we may regard as the most complicated organisms appeared. There is no question that there has been a progression from the most simple, to man, the most complicated of all. Then comes the question,—have these changes been brought

about by Divine laws, which are continuously operating for change?—or by Divine power continuously setting aside old laws and establishing new ones?—by laws continually operating, or by laws continually being broken? For that there has been a continuous succession of changes, no one pretends to deny.

When we ask a question, it is not in human nature not to inquire what may be the reply. Indeed it is because we suspect that we ask. There could be no questioning without a prior doubt of some kind. We see a man full grown, and we see a babe; and, knowing that there was a time when man made a first appearance on the earth, we ask did he come here as a babe, as he does now, or did he appear first as a full-grown man? We know he does not now come into the earth full grown, and we know a babe cannot take care of itself. If this were all that be left to us, it would be no use to consider the problem at all; but we see in the lower forms of life the young are capable of an independent existence, at once from birth, and thus we see that under existing laws it is just possible that there might be a development from the young capable, to the young incapable. In other words, though man or the higher animals may not have come into existence in the first place, either full grown or as babes, so far as we can judge from any existing laws, yet it is possible they may have been developed from a lower to a higher plane by degrees. It is this possibility, this guess, which is among the foundations of the modern questioning of nature known as "Evolution." It did not arise with Mr. Darwin; but he has done more than any other man to show that it may be a reasonable guess. This, and nothing more, is "Darwinism," and this is what Mr. O'Neill has undertaken to refute.

Mr. O'Neill takes credit that he "refutes" Mr. Darwin by Darwin's own facts,—but at the outset this places Mr. O'Neill at a great disadvantage. It would be much better for his side of the case if he were to fall to work and collect facts as industriously as Mr. Darwin has done. But there is nothing in the work before us to show that he is capable of any such an effort. He appears to have been a diligent closet student, and nothing more. He is master of the art of logic as taught in the schools, knowing little of the logic of facts as derived from experience. It soon becomes evident that he mishapprehends Mr. Darwin, and that though he quotes profusely from Mr. Darwin's works, and makes very good points as

he goes along, he does not do justice to Mr. Darwin's real views. Mr. Darwin, as most of us know now, has made many incidental errors, and his inferences are not always sustained by the light of what has been observed in later times. But on the other hand since Darwin wrote there are quite as many new facts brought out to strengthen his views, as there are those which weaken them,—but of these our author evidently knows nothing. Like a lawyer pleading on a case against Mr. Darwin, he naturally seizes on every weak point, as if it were one of great importance. When Mr. Darwin, for instance, tells us that a certain belief has prevailed "from the time of Columella, who wrote shortly after the Christian era to the present day," Mr. O'Neill takes occasion to say that "the impression, with the writer, has ever been, that the 'Christian era' lasted, at least, until the *origin of species* was published." Every one but Mr. O'Neill may understand that Mr. Darwin inadvertently left out "began" after "era;" and that his "impression" is of no sort of consequence as an argument "against Darwin." The whole work indeed strikes us as of the class with Archbishop Whately's effort to prove the non-existence of Napoleon Buonaparte. It is a clever but unconvincing work. His line of argument is that there is no feature that marks what we call a new variety, that did not exist in some ancestor more or less remote,—that the types or "first parents" of all existing species had every character in one that now appears severally in many forms. In other words that there has been a continual suppression of parts, and that it is only by regaining occasionally what has been lost, that there comes in what we call a new variety. In other words, as we understand Mr. O'Neill's view it is quite possible for a monkey to be evolved from a man, but not a man from a monkey!

Of course every student of Mr. Darwin's works knows that he does consider much of the change of form we see as due to reversion and suppression,—but he also knows what is never referred to by Mr. O'Neill, that Mr. Darwin's works show the entrance on the stage of wholly new characters, which we have no reason to believe ever had an existence before. For instance, of late years we have come to know that the *Salix Babylonica*, sprung from *Salix Japonica*, and there is no probability, so far as any mind can suggest, that the peculiar characteristics of the former, ever had a prior existence till it sprung from the latter.

Then there is another form of willow known as *Salix annularis*, the ring-leaved willow, which we know sprung from *Salix Babylonica*. Its peculiarity never existed in any probability in the former. Now this *Salix annularis*, has within two cases only that the writer of this knows of, reverted after many years to the *S. Babylonica*. It retained its characters for some half of a century before a branch betrayed its origin. Here is the entrance of an entirely new character, and a reversion to the old one. It shows that both are true, and this Mr. Darwin has well illustrated.

We do not believe that Mr. Darwin's views of reversion, intercrossing, natural selection, and other agencies always cover the ground he claims for them. As a student of nature, the writer of this has often had to object; but that they are sound in the main we believe, and a careful reading of Mr. O'Neill's book has not in the least weakened our faith in them.

THE COTTON WORM. By Prof. C. V. Riley. Published by the Department of the Interior.—The United States Government stands high in the estimation of the people of other nations, by the aid it gives to scientific explorations and investigations, and it is chiefly because of its interest in the development of the progressive paths of peace, while the rest of the world is mainly occupied with the arts of war, that population, capital and enterprise are so freely poured in upon us. Indeed, there is very little left for a United States Government to do but to look after the protection of the people from internal enemies since it has no foreign foes to menace them. And we have no greater foe than ignorance,—and especially that class of ignorance which only exact scientific knowledge can destroy.

This work of Prof. Riley and the Entomological Commission is one which will do much to maintain the excellent reputation of our government, to which we have already referred; and it will do much towards curbing the destructive power of one of our national enemies,—the cotton worm. Indeed, a study of this work will not be of value to the cotton raiser only, but will expand the view of all engaged in the war against noxious insects of many kinds. So far as the cotton worm is concerned, we have here given the history of the insect copiously illustrated in all its stages of growth, as also of others which have any possible relation or connection with it. Also all sorts of machines and contrivances by which the insect may be caught and destroy-

ed. The wide diffusion of such knowledge as is contained here, cannot but be of untold value to the country in dollars and cents; for though the intelligent man generally gains what the ignorant one loses, it is always an absolute loss to any country where even one man's labor is thrown away.

HOW TO LEARN SHORT-HAND WITHOUT A TEACHER, we have from S. R. Wells & Co., New York.

DAIRY FARMING, Part 7.—This part has for its frontispiece a beautiful colored plate of Ayrshire cattle. The leading chapters are on the nutrition of plants and application of manures. Cassell, Petter & Galpin, New York, are the agents.

THE WORKSHOP COMPANION, Industrial Publication Co., New York.—A small but very useful book. In gardening and farming, more than in any industrial employment, one has to depend on self-education in many a little thing. We once knew a gardener who was in a "great way," because some glass in a forcing house was broken, and could not be repaired till a glazier from a neighboring city had been sent for. Such delays would not happen if people about isolated places had such a little book as this for their evening hours.

HERMAN MUNZ,—A florist of Meadville, Pa., died Jan. 25th, 1880, in his thirty-second year. Mr. Munz came to this country from Germany, in 1870, and located in Meadville, where he was employed for some time by one of the old florists of the place, and finally began business for himself. He was a man of unusual energy; and at the time of his death, in addition to managing his own business as a florist, he discharged the duties of Superintendent of Greendale Cemetery in that city.

ROBERT FORTUNE.—It is said that republics are ungrateful to their benefactors; but according to the *Gardener's Chronicle*, it is the same story all round. It says: "In this great country, where the arts and sciences flourish, not because of imperial patronage, but rather in spite of it, it would doubtless seem incongruous were any illustrious worker in horticultural pursuits to receive any special notice at the hands of the powers that be, or any of those honors that are so eagerly sought for by the fighting services of the country and so freely bestowed; yet it is difficult to repress a feeling of humiliation that so little national recognition is given to the servi-

ces rendered to the nation in general by other than Government servants, and to horticultural science and practice in particular, by such men, for instance, as Robert Fortune, a record of whose introductions from the far-off countries of China and Japan appeared in these pages before. It is not possible to calculate the benefits the country has received from Mr. Fortune's labors; they were quiet, plodding and unpretentious, carried on too often perchance under great privation and possible danger to life. None of the clash and pomp of war shed a halo over his work; there was no wading through slaughter, or records of thousands and tens of thousands of dead defenders of their hearths and countries to chronicle. It is the men who can boast of these trophies of civilization, that get the popular cheer, the national welcome, and the imperial honors, whilst the unpretentious seeker after good, like Fortune, finds his reward only in the almost utter forgetfulness of the nation that such a man ever was its benefactor. Yet Fortune's testimonials, silent but impressive, are found amongst us in their thousands; they exist in abundance in every garden, and are found now almost throughout the whole civilized world. Wherever a love for flowers and trees is, there also are the abundant evidences of his labors. Not to carry into aboriginal homes death and desolation was his mission, but rather to give comfort, beauty and life to all humanity. Bye-and-bye, perchance, when the grave has closed over his earthly career, the world will realize how much it owes to Robert Fortune."

BRAMBLETON GARDENS, NORFOLK, VA.—Since Mr. Barker's death, these promising nurseries are being continued with Mr. B. Reynolds as superintendent. The collection is rich in orchids as well as other rare plants.

THE LADIES' FLORAL CABINET.—We note that this pretty and useful magazine has passed from the hands of Henry T. Williams to those of Adams & Bishop, New York.

CASE'S BOTANICAL INDEX.—This little quarterly, published at fifty cents a year, at Richmond, Indiana, is surely worth more than its subscription price to any one interested in horticultural botany. The January number has an illustrated chapter on the celebrated water lily of the Amazon,—Victoria regia.

AMERICAN ROSES.—By H. B. Ellwanger, reprinted from the proceedings of the Western New York Horticultural Society. This is one

of the most interesting papers that have been contributed to horticulture for some time past. Mr. Ellwanger has looked up all the American varieties of roses, and has given a brief sketch of their history. These number fifty-three. The list might doubtless be enlarged, and it would be doing good service if those who know of others would send some account of them to Mr. Ellwanger. Sherwood's Musk Cluster was a famous rose in its day among Philadelphia florists, and we fancy is yet to be found in some collections.

WORCESTER COUNTY, MASS. HORTICULTURAL SOCIETY TRANSACTIONS FOR 1879.—Mr. E. W. Lincoln, Secretary. It is always a pleasure to receive these annual proceedings, and we can envy a society which has so intelligent a gentleman and enthusiastic horticulturist for secretary, whose report is one of the leading attractions of the volume. We learn that this society was incorporated on the 3rd of March, 1842, and that Anthony Chase, the last of the incorporators passed away last year. He was particularly distinguished for his love of testing new fruits. Mr. L. shows well how botany and horticulture is year by year forming a closer union, and how in the future they must go on hand in hand together if we are to derive from horticulture all the pleasure it is capable of affording. In this connection Professor Goodale gave a course of four lectures before the society last year, in which the relations of botany to horticulture were ably set forth. Abstracts of these lectures form part of this vol-

ume. In this connection we may note that botanical addresses on the objects exhibited, are now becoming some of the most popular features with some of our progressive horticultural societies.

SCRAPS AND QUERIES

FLORICULTURAL PROGRESS.—E., Philadelphia, wonders with some reason where progress will be in twenty years from now. He refers to a visit he paid recently to Mr. Dreer's new Coleuses, and compares the number of beautiful forms with the few of former years, and asks "what next?"

PRIORITY OF DISCOVERY.—Querist. We have seen the paragraph you refer to, but have no disposition to join in the controversy. We may say however, that we believe entirely too much is often made of the credit notion. A man discovers a new fact, but he is lazy, modest, indifferent, or whatever you may choose to call it, and the valuable discovery practically dies with him; but a hundred years afterwards some one else finds it, and works hard to make it known and useful to the world. All at once some one digging in among the mould of the past, finds an old letter in which there is a chance expression indicating that this hundred-year-old lazy bones knew all about it. As a matter of fact it is well enough to note it; but yet we think of the two, the more modern one should have the whole credit for it.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

PENNSYLVANIA FRUIT GROWERS' SOCIETY.—The annual meeting was held at Bethlehem, Pa., according to announcement, and was a very successful one. A much larger number of members than usual were present. Much of the unusual success was due to Secretary Engle, who proves to be one of the cases where the right man falls into the right place.

More than usual interest was taken in the peach, by an introductory address by John Rutter, Esq., of West Chester, who has been in the past one of the most successful of Pennsylvania peach growers. It was clear from his remarks that cheap land is not always the prime item of success in peach growing. There were discussed all the troubles about marketing, commission men, getting ready before ripe, glutting the markets, railroad transportation, and loads of other

troubles, all got rid of by having young peach orchards a little nearer to the large city.

The only disease or trouble of any sort that was of any consequence to the peach was the yellows, but this was really a very small trouble in the districts about Philadelphia.

In regard to the profit of orcharding, the discussions were very earnest, and in most cases the members took what might be regarded as the conservative view. The real difficulties, the dark side, as well as the bright side of the subject, was shown, and that only those who made it a good business study could succeed. One essay showing that fruit growing could never be overdone, had to run the gauntlet of this conservative discussion, to the great profit of those who were anxious to get rich in the fruit growing field.

The other matters were more of a local than general interest, referring chiefly to varieties for local culture, buds, tree peddlers, flower gardening, and adornments of grounds. Judge Stitzel, of Reading, was elected President for the next year and Gettysburg as the place of meeting.

KENTUCKY HORTICULTURAL SOCIETY.—The peach seems to have been unusually complimented by the Horticultural societies this season, the Kentucky society, as well as some others, having given it the post of honor in their proceedings. Hon. W. J. Lee read a paper on the subject. In regard to varieties, he said:

"The selection should depend upon the situation of the grower. Select sorts to make a complete succession through the whole season. Plant lightly of Amsden June, Early Beatrice, Early Louise, Early Rivers, Early Baltimore, etc. Plant a few Hale and Tillotson, but plant largely of Troth's Early, Large Early, York, George IV., Oldmixon Free, Rodman's Red Cling, Oldmixon Cling, Ward's Late Free, Grand Admirable, Smock's Late Free, and Heath."

In regard to picking and packing, he said: "One may have followed all the directions previously given, and may have grown very fine peaches, and yet lose money by picking at an improper stage of ripeness and bad packing. If a man has any taste about him, he has a good chance to show it in picking and packing peaches. Picking and packing peaches is a business to be learned, and a man has to serve a trade at it before he can be an expert in it. All the specimens on a tree do not ripen at the same time, and it frequently happens that you have to make as

many as ten pickings from the same tree, but usually five or six will answer. In handling a crop of 5,000 boxes of peaches, every peach should be picked as near the same stage of ripeness as possible; this stage may be known by the green side changing to white in white peaches and to pale red in red peaches. A peach receives its color and flavor about forty-eight hours before it softens, and should be picked as soon as it has reached this stage. Peaches should be handled very carefully in picking.

"The directions I shall here give are for packing in boxes. Peaches should be packed in new boxes, made neat and strong. Each shipper should have a numbered stencil, by which his fruit may be known in the market, and for convenience of separating lots in the commission house. Every box should be stenciled before it is filled, as you are less liable to overlook one. Should you fail to stencil a box it would be apt to be lost in shipping, or should it get through, the commission merchant would not know to whom it belonged. I consider packing the most particular thing in peach culture. To do good packing it is necessary to have proper fixtures."

NURSERYMEN'S ASSOCIATION.—This body will hold its next meeting in the Grand Pacific Hotel, Chicago, on the 16th of June, 1880. We believe it will be profitable for all having the best interests of the trade at heart to attend. A correspondent suggests that as a great national political meeting is to be held there a little before that time, and some might like to attend both, would it not be well to have the meeting of nurserymen earlier? We have promised to give his idea notice, but do not advocate it. The writer had good experience in this "killing two birds with one stone" idea at the Centennial. They all turned out, as did his boyish effort with the birds illustrated. He never did kill two birds with one stone, nor did he ever meet the boy who did. The attempts always failed. One thing at a time seems to be the best for all things.

THE HORTICULTURAL HALL, PHILADELPHIA.—This fine building, in which the Pennsylvania Horticultural Society had but a very small pecuniary interest, in comparison with the whole cost, has changed hands. It brought \$75,300. It will make no difference, we presume, to the Horticultural Society in the way of its exhibitions, library, etc., which will probably all go on as formerly there.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The best time to plant evergreens is always a disputed point, — some preferring the early, others the later spring. But the average planter takes the earliest advantage, for there is always enough to do when the last chance to do anything arrives. The real difference in season is hardly in favor of one over the other; much more depends on the manner in which the tree is taken up, and the manner in which it is planted, than on the precise month in the year. More trees die from bad planting than from a bad season, or bad digging; and bad planting consists more in not having the earth rammed in tightly about the roots than even some good tree planters imagine. It is all very well to spread out the roots with the fingers, and to punch in a fistful of earth here and there. It is not because one spends an hour over the job that it is done well. Nor is it any proof of good planting that a large hole, or a deep hole, or a hole full of good soil, or a dozen buckets of water, or the prevention of drying by the roots, or the cutting off of wounded portions were all scrupulously attended to. We may do all this, and the tree be very badly planted indeed. The man who takes a heavy paving rammer, and rams in tightly every shovelful of earth as it goes in on the roots, and who may perhaps finish the job of

planting even a large tree in fifteen minutes, we should regard as much the best tree planter. If the tree has been badly dug, this may be remedied by cutting back some of the weaker branches, and leaving the stronger ones; but nothing will make up for a loosely packed soil about the roots.

Where evergreens can be benefited by pruning, April is a very good month to attempt it. If a tree is thin in foliage at the base, the top of the tree, leader and all, must be cut away. It makes no difference what the kind is, all will make new leaders after being cut back, if properly attended to. We make this remark because there is a prevalent idea that Pines will not stand this cutting. Of course the trimming should be done in a conical manner, so as to conform to the conical style of the evergreen tree. Sometimes an evergreen, especially a Pine, will rather turn up some of the ends of its side branches than push out another leader; when this is the case, cut these away, and a real leader will form the second year.

Evergreen hedges should be trimmed now, cutting them conically, so as to give light to the lowermost branches.

There is so much to be done in April, that the briefest hints must suffice. First, of course, we must prepare the ground for planting. Soil loosened two feet deep dries out less in summer

than soil one foot deep. Rich soil grows a tree larger in one year than a poor soil will in three. Under-drained soil is cooler in summer than soil not under-drained. The feeding roots of trees come near the surface; therefore plant no deeper than necessary to keep the tree in the soil. If there be danger of its blowing over, stake it, but don't plant deep. One stake set at an angle is as good as two set perpendicularly. Straw or mat set round the tree keeps the bark from rubbing. Large stones placed around a transplanted tree are often better than a stake. They keep the soil moist, admit the air, and encourage surface roots. Shorten the shoots at transplanting. This induces growth, and growth produces roots; and with new roots your tree is safe for another season. Unpruned trees produce leaves, but little growth, and less new roots.

In arranging flowers in beds, aim at varying from last year. And to obtain this ever-changing and pleasing variety, annuals are the very things for the purpose. But they must have good soil and careful attention, or the seed will be sure to furnish a good excuse for neglect or bad practice in many instances. Very fine seeds may be sown quite on the surface, and a little moss, dried and powdered, spread thinly over the seeds. The common cause of failure is deep sowing. The nearer the surface, the better, provided they do not ever become dry—which is as fatal as deep planting. It is a happy practice that can just hit the middle way. Climbing annuals are particularly interesting. Tuberoses are best planted out as soon as all danger of frost is over, in a rich, moist, warm, sandy soil, if perfection is desired. Roots that flowered last year will not flower again for two seasons.

COMMUNICATIONS.

A NEW BORDER PLANT.

BY A. G.

This plant, *Bambusa variegata*, grows to about four inches in height, having a wide grass-like leaf of a yellow-green tint, edged with white. The flower resembles the grape hyacinth, being of a purple blue tint, and similar in shape. Though recommended for the aquarium and fernery, the *B. variegata* or dwarf bamboo produces a very pretty effect when used as a border plant. It requires little or no trimming, the rain does not fade it or discompose its outlines; its leaves being firm in texture, upright, and glossy. It gives a distinct yet airy outline to the bed, yet does not impair

the effect of other plants, as it keeps steadily to its subordinate position as a border plant. Last summer (1879), we saw in the grounds of T. Fairly, Florist, Druid Hill Avenue, Baltimore, some beds bordered with Dwarf Bamboo. The effect was pretty and unique. Directly within this border was placed a row of small plants resembling the house leek, the centre being filled with larger plants. The border made a distinct outline in the grass. Seeing the excellence of this plant, and having tested its capabilities, Mr. F. is prepared to recommend it as a convenient and useful border plant. Those desiring a plant that will require little or no attention during the summer, as to trimming, would do well to try it.

DUCKS AS INSECT-DESTROYERS.

BY MRS. D. W., SUMMERVILLE, S. C.

Being obliged to manure heavily a very sandy soil, and use whatever rich earth I could lay my hands on, the first year of gardening, on a new place, I was, as the spring advanced, terribly annoyed with slugs, cut-worms, and insects of every description; the annuals were destroyed, the young rose leaves pierced and ruined.

I bought eight or nine ducks, such as with us are termed English ducks. Muscovies eat the buds and young shoots and will not answer. I turned these ducks into the garden, giving them a fine run there for three or four months, and assure you that I was perfectly astonished at the success of my happy thought.

It may be urged that the ducks trample down the plants. They may do so in a measure, but the injury does not counterbalance the entire clearing of the garden from all sorts of insect enemies. My roses were fine and remarkably free from blight and insects.

NOTES FROM ENGLAND ON PRIMULAS, etc.

BY J.

I think *Primula rosea* is quite as hardy as *P. acaulis*. I have some plants of it in an artificial bog, and although we have had five weeks hard frost without snow, and the plants were covered with a miniature glacier caused by the water freezing as it overflowed the ground, I find them quite uninjured, and each plant will produce a half dozen spikes at least. I think it would do well under your deep covering of snow.

Crocus odorus longifolius has kept blooming during the whole frost. I should not have thought the buds could have pushed through the frozen soil in the way they did. I have not

been without *Crocus* bloom since October. *C. Imperati* is about to open; *C. aurea* will follow it closely. *Saxifraga Bursereana* is showing its scarlet buds and will soon be in bloom,—although our *Snowdrops* make little progress. We get earlier spring flowers than we did in Shakespeare's time.

MAKING LAWNS.

BY WALTER ELDER.

To properly make a lasting lawn, and to keep it in good order, taxes the highest skill of the horticulturist, and when well executed, is the masterpiece of ornamental gardening. Without it all other improvements look insignificant. It forms the green carpet upon which all ornaments are to be placed, and its bright verdant hue imparts beauty to all.

Instructors upon lawn making, generally advise subsoiling the ground. If this be done, it should be a year previous to laying down the lawn. It is not always best to do it, as the subsoil may be a stiff clay, or barren sand. I have seen subsoil brought to the surface so poor that not even beans, peas or corn would grow,—the germs rusting and decaying away. The seeds of grasses are small and succeed best in mellow and fertile soil. Several species of grasses should be sown, and very thickly, to make a close, green turf. Red top or herd grass, blue grass, orchard grass and a little white Dutch clover. The land should be manured the previous year to sowing the grasses. After digging or plowing, harrow or rake fine, level up all hollows, and roll firmly down. Then sow the grasses, rake fine or harrow, then roll again. The sowing time will be according to climate and latitude. Between New York and Baltimore, say from early March to middle of May, and from early September to early in October, and all the Fall after that. When grasses and weeds are well up, roll well, and let them all grow until the earliest weeds shoot up flower stalks, then mow down with the scythe or horse-mower, and scatter the cuttings evenly over the surface. When they wither, roll again, and then rake all off. On sandy lands, the summer mowings should be seldom. On sloping lands and terraces or banks, the grass should be let grow long in hot, dry weather, unless artificial watering is at hand. The lawn should not be weeded the first year, but cut down all weeds when they bloom to prevent them bearing seeds. Weeds may all be taken out in late fall, and more grass seeds sown.

Men with table knives, can get out a vast number of weeds in a short time. A thorough digging out of weeds, with table knives, will keep the lawn nearly clean. Do it in late fall or early spring. The lawn should be firmly rolled down every spring. It is good to sow some more grass seeds in late fall or early spring, so as to ensure a close turf the next summer.

Barnyard manure, so fermented and rotted to kill all seeds of weeds in it, is the best fertilizer. It should be spread equally over the surface in fall or winter, as salt is a most excellent fertilizer, when applied at the rate of five to ten bushels to the acre. Marl mixed with plaster of paris is beneficial on sandy lands. Guano, and all the concentrated fertilizers are good, but their effects are different upon different lands. Lime, wood ashes and stone coal ashes should all be compounded with soil a year before using, and spread over the lawn in fall.

EDITORIAL NOTES.

THE POLYANTHUS.—There are few more beautiful plants in the early spring than the old-fashioned Polyanthus, in its numerous varieties; but though hardy enough through the winter, they are liable to suffer through the heats of summer. In partially shaded rich garden borders they continue many years.

ABIES MARIESII—A NEW JAPAN FIR.—The *Gardener's Chronicle* figures and describes a new species from Japan, having the general appearance of Nordmann's Silver Fir, and named in honor of Messrs. Veitch's collector in Japan. It is from Mount Nikko, at an elevation between 3500 and 7000 feet.

FRAGARIA VESCA.—This pretty species is a native of our country, as well as of Europe, though not as often met with as the Virginian or common strawberry. It is the parent of the Alpine class of garden fruits. It may be readily distinguished by the smaller and more plaited leaves. In riding through Fairmount Park, Philadelphia, in mid-winter, the writer came on a bank from which the snow had just melted, and which was covered with these plants; the evergreen leaves shone beautifully through the melting snow, and suggested the beautiful effect which they might give in the hands of those who are just now interested in the "wild garden."

PLANTING THE PARTRIDGE BERRY.—People often plant this in gardens for the sake of

its beautiful red berries, but fail to get any under cultivation. The reason is that the plant is dioecious. The plants should be selected when in flower, and the two forms,—the long stamened and the long styled—and both set in one mass together.

ARISTOLOCHIA SIPHO.—There are few climbing vines that will give the noble appearance the old "Dutchman's Pipe" will. There is a smaller-leaved species, the *Aristolochia tomentosa*, which is also pretty,—but if you cut its roots it will never forgive. Indeed the more the roots are cut the more it spreads, till in time the grower is inclined to believe in the old idea, that at times there may be too much of a good thing.

GRAFTED CONIFERS.—Mr. A. Fowler, the distinguished gardener at Castle Kennedy, when looking at his own beautiful plants, wonders why there should be any prejudice against grafted conifers? The chief reason is that the plants have been grafted in pots, where the roots learn to coil and twist, and they keep the tree more or less in a stunted condition for years afterwards; and another reason is that some propagators take little bits of weak side branches for scions, and which only make leaders with great difficulty. A properly grafted conifer is often better than a seedling tree.

INTRODUCING SKYLARKS.—Every once in a while some one writes to a nurseryman: "I wonder why you nurserymen do not grow this or that," and it generally happens that they have been growing it all their lives, or have over and over again tried it, and found insuperable obstacles. It is thus with travelers when they go to some foreign country. They cannot conceive why this or that is not done. After his return to England, even so very intelligent a gentleman as the Duke of Argyll says that the skies of America are higher, wider and more full of sunshine than those of England, and he is very earnest in suggesting that the skylark to this 'glorious privacy of light' would be happier than that of the London sparrow." He might have found on inquiry, that when the lark might go up in the morning in bright warm sunshine, and return at noon to find a foot of snow on the ground, he would probably have a suspicion that this was not the country for him,—and when he found it to be three or four months after before he could find the ground he left behind him, and nothing to eat in

consequence of this deep snowy covering, he would probably grow more disgusted. Moreover he might have learned that attempts have actually been made from time to time to introduce the bird, and that once they thought in Delaware they had secured his permanent presence; but of late we have heard nothing of him, and we presume in the language of His Grace's countrymen, he has "gone for aye," a much sadder instead of a "happier" bird.

ORIGIN OF THE MARESCHAL NEIL ROSE.—A correspondent of the *Gardener's Chronicle* believes this rose to have arisen from graft hybridization.

THE EUROPEAN WINTER.—The Belgian Horticulturists are already counting their losses over their terrible wintry battle-field, and reports like these are continually coming in. One from the "Commune" of "Hastiere," says: "Pears, Peaches, Plums, Apricots, and Grape vines exist only in a state of carcasses!" Another story runs: "Pears,—dwarfs, half-stems, or standards are dead to the roots, as also are many nut trees." Another writes: "The altitude of the orchards seem to have had no effect on the disasters. At the foot of the Meuse, espalier Pears are converted into bundles of dry wood, and I measured an apple tree a metre in circumference that was completely killed." Then come some "inexplicables." "In the Botanic Garden at Namur is a *Wellingtonia*, wholly unhurt, but another near it completely killed;" another wonders why "*Araucaria*, *Deodar* cedar, *Picea pinsapo*, and *Pinus maritima* should be completely killed; while *Picea balsamea* should escape always unhurt."

Among the plants which are noted as being everywhere completely lost are *Camellias*, *Azaleas*, *Rhododendrons*, and *Roses* in "immense quantities," and it is prophesied that many commercial houses will be nearly ruined.

THE BROAD FIR.—In our country we confine the word "Fir" to the class of coniferous trees which have branches with the leaves arranged in a single row,—fan-like,—as for instance the *Balsam Fir*, the *Silver Fir*, etc. But in Europe, the *Pines*—those with bundles of "needles" for leaves—are "Firs" also. The *Garden* says that in Austria, the *Austrian Pine* is called the "Broad Fir," because as it grows old, it loses all its lower branches, and makes a broad flat, spreading top.

VARYING TASTE IN GARDENING.—A correspondent, writing from an old city south of the Ohio, says: "Twenty odd years ago there were several large nurseries near this city, where one could get full assortments of trees and shrubs,—none of consequence remain. In the place of a love for these nice things, 'bedding plants,' cheap and flashy, is about all the gardening taste that now prevails."

GROUNDS OF WM. GRAY, JR., BOSTON, MASS. These beautiful grounds comprise about forty acres. It is an excellent specimen of landscape gardening, and gives a great deal of pleasure to visitors who are often kindly permitted to enjoy a ramble through them.

WINTER GARDENS.—These are becoming popular, in connection with public parks in England, and might with much propriety be introduced into our own country. Four or five acres are covered by glass, and plants almost hardy, and needing very little fire heat are grown in them. What would be more beautiful in our northern cities than gardens like these with *Portugal Laurels*, *Bays*, *Camellias*, *Myrtles*, and other things of that character, which will even bear some frost without injury, but with a slight protection would be beautiful all the winter long, and afford dry and healthy walking at all times.

COTONEASTER.—We recently saw a plant of *Cotoneaster Simmondsii* in a small tub in a greenhouse, and full of red berries; it was remarkably beautiful. In Pennsylvania, this and many species are quite hardy, and yet how seldom do we see them in gardens. They are as striking, in some respects as the *Holly*, and much easier to grow.

AMPELOPSIS JAPONICA.—Under this name, the *Gardener's Chronicle* says: "English nurserymen are cultivating our common poison vine, *Rhus toxicodendron*."

GOLDEN GATE PARK, SAN FRANCISCO.—This is praised very highly for beautiful features by some good judges who have recently seen it.

SPIRÆA LOBATA.—There is a great run in Europe, just now on the pretty red *Spiræa palmata*, from Japan. And no doubt the inquiry for it will soon spread to our own land. It may be as well to remind our friends that we have native with us *Spiræa lobata*, which is as much like the Japan one as "two peas," and that if the Japan species is worth hankering after, our own little *Beauty* is no less so.

SCRAPS AND QUERIES.

SECOND FLOWERING OF THE HORSE CHESTNUT.—M. notes that the *Horse chestnut* flowered in the fall as well as in the spring last year, and asks if it be explainable? Many trees which flower in the spring, flower in the fall if their leaves be injured before natural maturity. Pears which drop their leaves early from leaf blight, almost always flower in the fall.

TOO MANY ROSES.—Frederick Schneider II., President of the Horticultural and Agricultural Society, at Wittstock, Germany, writes to us that he thinks there are too many *Roses*. It is now too late for the time he fixes on, but it will much interest our readers to note what an intelligent European thinks of so many roses, and how he proposes to reduce the number:

"The aim of this list is to reduce the four or five thousand different varieties of roses at present grown in the gardens to a limited number of really valuable ones only—to publish the names of these sorts and so to recommend them for preference in cultivation. All answers should be sent in during November and December 1879, post free to my address and must be accompanied with the distinctly written signature and full address of the sender in order to make it possible to communicate the result to him. To each variety should be added if possible the name of the raiser and the year of its introduction. The printed result of this election of roses will be communicated gratis and post free to all those horticultural papers and all those correspondents who have taken part in it.

List of Questions.—Name and occupation of the correspondent. Address and date. I beg to answer the following questions:

1st. Which are three most perfect roses as regards construction and form, substance, shape, habit and scent in the following colors? A.—Hybrid Perpetuals and Bourbon Roses, a, pure white; b, tinted white, blush and flesh color; c, pale pink and light rose; d, bright pink and deep rose; e, carmine; f, scarlet and vermilion; g, purple and crimson; h, dark crimson, brownish and blackish maroon; i, violet; k, striped.

B.—Teas and Noisettes, l, pure white or slightly tinted; m, blush and pink, rose; n, tinted pink and rose; o, pale and bright yellow; p, yellow tinted.

2d. Which are the three most beautiful Moss Roses?

3d. Which five varieties of roses are the greatest favorites and the most generally cultivated in the district of the correspondent?

4th. Which five roses distinguish themselves especially—a, through their uninterrupted blooming (5); b, through superior scent (5); c, through their hardiness and insensibility against frost (5)?

5th. Which five Hybrid Perpetuals are the freest and most abundant bloomers—a, for the summer (5); b, for the autumn (5)?

6th. Which are the ten best roses for forcing?

7th. Which five varieties are best adapted for cultivation in the room?

8th. Which are the three most beautiful pillar roses?

9th. Which ten novelties from 1873 till 1878 are of such remarkable beauty that their cultivation and distribution can be recommended without the slightest hesitation?

10th. Which are the ten best English raised roses?"

LIGUSTRUM JAPONICUM.—C. E. P. writes: "In the MONTHLY for February, page 40, I notice some remarks on Ligustrum Japonicum, by C. A. D.; also your request for specimens. I do not know L. ovalifolium, and can find no description of it in any work that I possess, and I hope that C. A. D. will give me some description of it, if the enclosed specimen is not L. ovalifolium. In justice to myself however, I wish to say that I received my plant under the name of L. Japonicum, from Parsons & Sons Co., and I think that it must be correct to name; as we have purchased trees and plants from Parsons & Co., for the past thirty years, and I have yet to find a tree or plant sent out by them to be incorrectly named."

[These Ligustrums need to be worked up when in flower by some competent botanist. From different samples that have been sent to us in leaf only, they appear to be all garden forms of Ligustrum lucidum, the Chinese Privet.—ED. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

In this part of the world window plants are not given their summer airing until May, but every opportunity is taken to let them have all the open air possible, by opening windows and sashes wherever practicable. People often complain that plants from greenhouses are too tender to stand the open sun, but it is only because they have been too much confined. If any plants growing in pots are yellow, or in anyway sickly, it is as well to prune them severely and plant for a year in the open ground. If they have insects on them these should be cleaned off before planting out, or they will increase under our dry summer sun. The red spider is best treated to a syringing of warm soap suds, and then to be dusted with sulphur; and the scale insects should have a painting with whale oil soap, and some say linseed oil. Many plants will have to be kept in pots all summer, and these are best set in partial shade. There are few more desirable room plants than the Ivy and Periwinkle in their

numerous varieties. These should be potted now, and grown all summer. There are many things nearly, or quite hardy, that are not often kept in pots, but which would make good things for room culture, and these should be potted now. Of these we may name Cotoneasters, Mahonias, Berberis, Euonymus. These are very easily managed, and it seems to us that for those who have had little experience in plant growing, or whose conveniences are limited, it is just as feasible to have beautiful things easy to grow, as beautiful things that are difficult. Tea Roses, as well as China and Bourbon are good room plants. The old Hermosa and Pink Daily especially so. If young plants are turned out in the ground now, they can be lifted in September carefully, and if well potted, will flower freely all winter. This is the way professional florists grow Bouvardias, Carnations, and other popular flowers for cuttings. Very small plants are set in the ground at this season, and are quite large enough for potting by the fall.

COMMUNICATIONS.

PORTLANDIA GRANDIFLORA.

BY C. H. CLAFLIN, NEWTON, MASS.

In an article in the January number of your magazine, a writer on the Portlandia grandiflora expresses the opinion that it would grow to the height of twenty feet, which opinion I am happy to say I can confirm by actual observation. During the earlier part of January, 1874, I was in the village of Mandevillo, Manchester parish, Jamaica, which is situated about fifty miles in a north-westerly direction from Kingston, and at an elevation of about 2000 feet above the sea, where a fine specimen of the Portlandia was shown me which had attained to the height of 20 to 22 feet, forming quite a tree. That the size was exceptional however, I found by the pains that was taken to call the visitor's attention to it, and also confirmed by subsequent experience in the gorge of the Rio Cober River, above Spanish-town, where I saw no bushes over 10 feet high, and but few over 6 feet. There were however more flowers on them than in the tree at Mandevillo, which may be accounted for by the difference of temperature, which may have kept the larger specimen back, Spanish-town being but little above the sea level. The flowers looked from a distance more like the Lillium longiflorum, having more firmness in the petals than any of the Daturas. They were at that time in full leaf, and the fragrance during the day time imperceptible.

FERNY FACTS AND FANCIES.

BY W. T. HARDING, UPPER SANDUSKY, OHIO.

In the MONTHLY of December, 1879, I see Mr. Parnell answers the query of "J. S. R." as correctly and concisely as any one can do, without seeing the plants in question. The allusion to the Rabbit's, or Hare's Foot Fern, seems to call me back to my boyhood days, when I, a mere stripling first saw them. And probably no incipient gardener felt prouder than myself, when first promoted to a position under the sashes. Lord Vernon's great gardens were then famous for ferns and flowers; especially for Cape, and Australian, or New Holland plants, as they were then more generally called. In one of the large, though somewhat antiquated greenhouses were placed a collection of what my much honored and gray haired preceptor called his anatomical group. Rather a queer designation, I

will admit and which may need explaining to the reader. As the kind-hearted old man, Mr. Digwell's specimens of comparative anatomy were but few, they were soon learned, and it seems with me were long remembered. To briefly describe them, I arrange them under the following heads, to wit: *a la Digwell*—horns, heads, ears, faces, tongues, throats, wings, tails, feet and claws. The horns, as first named, were *primus*, of course, as they are generally placed on the highest part of the animal structure, and were represented by *Platyterium alcornae*, or Stags Horn Fern. This curious plant in reality much more resembles an osseous formation, than a herbaceous one, when seen from a distance. The head, or second example, was a *Euphorbia caput Medusæ*, or Medusa's Head. And next was the Face Tree, the singular *Mimusops cynocarpa*,—known in common parlance as the Monkey-faced Tree. The ears had a *fac simile* in a specimen of *Phyllis nobla*, the Hare's Ears. While *Ornithoglossum undulatum*, or Bird's Tongue, and *Pieris hispida*, or Ox Tongue were proper examples, if not exactly, lingual synonyms. Next in order was *Trachillium diffusum*, or Throat Wort. The Bat Winged Fern, *Pteris vespertilionis*, whose strangely formed fronds were considered appropriate illustrations of wings, were the next. Then in consecutive order, was the caudal appendage,—and "thereby hangs a tail," a Rat's Tail forsooth; and which is commonly known as the Rat Tail Cactus, or *Cereus flagelliformis*.

It will be seen that much of what goes to make up a perfect anatomical frame was wanting, and at best there are but parts of vegetative fragments to compare with a full corporeal structure.

But the extremities, both feet and claws, were not wanting to complete the similitude, inasmuch as the Bird's Foot, *Euphorbia ornithopes* and *Testudinaria elephantopes*, or Elephant's Foot; Hare's Foot, or *Polypodium aureum*, and Rabbit's Foot, *Davallia canariensis*, answered well for pedal parts, and which very properly ended with claws. *Epiphyllum truncatum*, or the Crab's Claw Cactus as terminal examples.

The good old gentleman, Mr. Digwell, was a good naturalist, a good linguist, a good botanist, and a good gardener, "one of the olden time." His abundant wealth of common sense, extensive information, urbanity of manners, and upright bearing, well fitted him for a "gentleman's companion," as he and his like were in days of yore. Men of his type, and abilities, ranked

much higher in the social scale, as well as in horticulture at that time, than they seem to do now. Perhaps they were better appreciated and more liberally compensated than are good practical gardeners at this day. A connecting link, as he was of y^e ancient and skillful gardener of the long ago, I well remember him and his kindly ways, with some of the happiest recollections of my life. And his last admonition when we parted was this, "Remember now thy Creator in the days of thy youth, while the evil days come not."

Sudbury Park, Derbyshire, England, is the pleasant place I refer to, and where I first saw *Polypodium aureum*, called the Hare's Foot Fern, in contradistinction I suppose to the Rabbit's Foot, or *Davallia canariensis*.

Now, if any of the readers will compare the big furry rhizomes of the *Polypodium*, with the more attenuated ones of the *Davallia*, they will readily see the difference in which the first-named resembles a big hare's foot, while the latter conforms more to that of the smaller sized animal. Referring to Mr. R. Buist's catalogue of stove and greenhouse plants, (good authority in such matters), published twenty years ago, he too designated the *Polypodium* as Hare's Foot Fern—and like many others, has known and cultivated them as such, for many years. As I am not infallible, I have no wish to be considered arbitrary in my opinion, nor claim to be right in my assertions, but simply give my ideas upon the subject for what they are worth. Loving ferns as I do, I could not well refrain from giving a short sketch of how they were first brought to my notice when a boy. Since then I have had much to say about them from time to time in the MONTHLY, and will close by quoting a passage from the June number of 1877. The scenes and circumstances are in Australia, as the writer saw them, thus: "The rhizomes of *Davallia pyxidata*, and *D. flaccida*, hung in lengthened masses like twisted and tangled ropes from the projecting crags, some forty feet long. The Stag's Horn Fern, *Platycerium alcicorne*, was indeed a curious sight to behold. Like a parasite, it seemed to live upon everything moist or dry, and grew equally as well on the tops of the trees as on the soil beneath," etc. At a subsequent period, your correspondent recollects the very unique use to which Stag's Horn Ferns were put. For instance—they supplied the place of antlers on the head of a life sized statue of a stag which stood

in a conservatory at Bretton Park, Yorkshire, England. Probably Mr. R. Scott, Florist, of Philadelphia, remembers the aforesaid stag with its vegetative horns, as he certainly had more to do with it than the chronicler of these facts. *Vale filices!*

EDITORIAL NOTES.

COLD GREENHOUSES.—From notes we have seen in various quarters, the idea we have often thrust out, to have houses where half-hardy things may be preserved through the winter without fire-heat, is likely to become popular.

ORIGIN OF FUCHSIA GLOBOSA.—Many will remember the time when the old *Fuchsia gracilis* (magellanica) and *F. globosa* were the only ones generally grown till the hybrids with *F. fulgens* came in. A correspondent of the *Gardener's Chronicle* gives the following account of its origin: "This was raised by the late Mr. Bunney, of Stratford. He had three globosas from the same batch of seedlings; his brother and he was dissolving partnership; the brother sold the best plant for 7s. 6d., gave the next best away, leaving the worst to the raiser. This I had from Mr. Bunney himself. I recollect a plant being brought to Scotland in 1835 or 1836. So also says Paxton, in *Magazine of Botany*. Loudon states that it was raised between *F. conica* and *microphylla*."

BUSINESS PROSPECTS.—Boston florists speak encouragingly. The demand for rose flowers has exceeded the supply. Some declare forcing hardy roses (H. P.'s) is a failure, the expense far exceeding the returns.

RUPP'S PRIMROSES.—We noticed last season the efforts of Mr. Henry Rupp to improve the Chinese Primrose. We have now before us a box of flowers in seventeen beautiful varieties. The variations run not only through shades of color, and with stripes and pencillings, double, single and semi-double, but also in crimping and fringing of the edges. Then we have not only to compliment Mr. Rupp on his flowers, but on the way he packs and sends them by mail. With the same package from the post-office some flowers came from another correspondent wrapped in dry cotton! Of course the flowers are dried up. In these Mr. Rupp has damp moss at the bottom of the box. The flowers are drawn through thick card-board, and the card-board tacked down tight on the damp

moss. It is a pretty sight on opening the box. No doubt the flowers would travel well even to California.

CROTONS.—Of the many who have heard of croton oil, few know what an important feature Crotons play among the vegetation of the earth. The number of species known is enormous, and they are found in wet or dry places in many parts of the world. There are a number na-

shining and rather thick leaves, more like those of a *Rhododendron*, than of the *Crotons* which American botanists collect. These are often of the most curious forms, and frequently veined or blotched with crimson or gold, and are among the most interesting objects in modern greenhouses. Besides their value for this sort of culture, they do well in windows and are becoming quite popular in room gardening. Of late years



CROTON MOOREANUS.

tive to the United States, chiefly in the south and southwest, but these have nothing particular to attract the observer beyond a silvery class of foliage which, however, many other kinds of plants in these regions have as well as they. From other parts of the world we have a very distinct class of *Crotons*, taking the forms of shrubs or even small trees, with no more ornamental flowers than our own, but with large,

they have been taken in hand by the improvers, as so many classes of plants have, and some remarkably beautiful forms have been obtained, and which are now much sought after by florists. We give with this, one introduced by the celebrated firm of James Veitch & Sons, of Chelsea, near London, who have been among the foremost in making the public aware of the beauty this class of plants affords.

DOUBLE GERANIUMS.—These are so numerous now, that we need improvement rather in form than in the mere multiplication of petals. Who will now give us a kind with the petals laid as neatly over each other as a double white Camellia?

INJURIOUS EFFECT OF GAS ON WINDOW PLANTS.—We have always urged that it was the fumes of illuminating gas, rather than the dry air of heaters, which rendered the cultivation of window plants so difficult. How injurious these fumes may be, may further be inferred from the following from *Weekly Notes*—a supplement, by the way, to the well-known *Penn Monthly*, of Philadelphia. The Editor, is referring to Edison's electric light, and says: "Still another advantage will be the saving of book bindings in libraries. At present our valuable russia, morocco and calf bindings steadily deteriorate in value, if kept in rooms where gas is burned. This is one reason why some of our most important public libraries are always closed at sundown, while in some private libraries candles are used to the exclusion of gas. The electric light gives out no heat, and no chemical substances. It is as cool in summer, as even Philadelphia or St. Louis would wish."

SCRAPS AND QUERIES.

CUTTING CAMELLIA FLOWERS.—"Jane" says: "Our gardener insists that I must only twist off the Camellia flowers, and put a wire through for a stem; that it will injure the plants if I cut a piece of the stem off with the flower. How is this?"

[It will not injure the plant in the sense in which we generally understand injury; but if you cut off the terminal growing bud when you cut the flower, you will not have a flower from that branch the next year, which you may have when you only "twist off" the flower.—ED. G. M.]

PLANT QUERIES.—Mrs. M. W., Quaker Hill, N. Y., asks: "Will you, or some of your readers of the MONTHLY, please give me a little information through its columns about the following plants: What are the requisites for success in starting the double Chinese Primrose from seed? What special treatment do the following plants require: Cape Jassamine, Eucharis Amazonica, fragrant Olive, and Stephanotis floribunda? And is the Eucharis a bulb, and if

so, when is the proper time to plant it? If it is not too much for a new subscriber to ask, I hope some one will give the proper mode of treating them and thus confer a great favor on me. Would also like to know the cause and remedy for the little black flies which infest the earth of window-plants."

THANKS.—Mrs. J., Brooklyn, kindly writes: "By the recommendation of a friend I have subscribed for the GARDENER'S MONTHLY, and must write and thank you for the preparation of such a work. I am amazed that I never heard of it before. My garden is but small—I wish it was larger—but the immense amount of intelligent reading about trees, fruits and flowers you give me, is the best substitute I have found for a good garden."

VERBENA CULTURE.—Mrs. R. P., Clyde, N. Y., says: "In your February number, 1880, in your reply to a Delaware Correspondent, who is in trouble with diseased Cyclamen, you name disease, but fail to prescribe remedy. I have reviewed my GARDENER'S MONTHLY which I have only taken since May, '79, but find no remedy for this Verbena rust,—only allusions to Peter Henderson's remedy. Please give his or somebody's specific if possible, for I, too have the same trouble with Cyclamen this winter. Can you give me any hints as to the culture of Cattleya Mossiae, Odontoglossum grande, and O. citrina? Can you tell me of a reliable work on Orchid culture? [The Orchid Grower's Manual.—ED.] Am trying my hand a little this year for the first. Have a small conservatory and a Wardian case, but have not had marked success as yet. Have buds now on my Dendrobium nobile and Cypripedium villosum. Would like to study their habits, etc., etc. Please reply in the GARDENER'S MONTHLY."

[Mr. Henderson's treatment is chiefly rich and generous culture. Keep the plants growing vigorously, and never allow them to be stunted or checked under any circumstances. Mr. Henderson's practice in more detail is described in April number, 1878, page 105, by Mr. J. H. Markey, one of Mr. Henderson's employees.—ED. G. M.]

CENTAUREA.—W. A. B., North Cambridge, Mass., writes: "I have raised a new plant; it came up two or three years ago among other seedlings. I did not take much interest in it at first, but since it began to grow I find it is a very valuable foliage plant. I set one out in the

garden last year, and it made a very fine plant towards fall. It grew about ten inches high and a foot in diameter. I have propagated it this winter. I find that the roots are the same as the Centaurea's. I should like your opinion about it, whether it is a new plant or not. I have consulted some of my friends, and they think it is a new Centaurea. Please let me know, and you will oblige me very much. The enclosed leaves are a large one and a few small ones. I have not any of the medium size or I would send you some."

[The leaves were small, and though somewhat near others that have been under culture in the past, they do not seem exactly like any of them.—ED. G. M.]

FINE CINERARIAS.—From Louis Gloeckner, Albany, N. Y., with a box of very beautiful Cinerarias, we have the following note: "With this letter you will find box of samples of Cineraria. Three years ago I got a package of seed from Mr. Alfred Bridgeman, of N. Y., who told me it was from the importation from Benary's in Erfurt. I had about twenty-five good plants then, and saved one of each color to get some seed. Out of the whole, I got about two hundred plants, which came out in beautiful colors."

[It is a pleasure to note the interest taken in the improvement of this beautiful class of plants. There are few things more attractive in greenhouses and rooms in the early spring, than a fine Cineraria.—ED. G. M.]

EUPHARIS AMAZONICA.—Mrs. E., Melrose, Mass., asks: "Will some one familiar with the culture of Eucharis, inform me through the MONTHLY if it can be grown as a house-plant? I read in a newspaper report of Mr. Tailby's essay before the Mass. Horticultural Society, that he said 'Eucharis were as easily grown as potatoes.' Doesn't that statement need some qualifications? Anybody can grow potatoes—can anybody grow Eucharis? They are so very beautiful, that even if they could be grown with much care, it should be widely known. I have always supposed it needed all the appliances of the hot-house, besides the most skillful treatment, to flower them successfully. If that is so, why does this Mr. Tailby aggravate us with his talk about potatoes? And again, if they are of easy culture, why is not the knowledge spread broadcast before the great world of admiring amateurs? I think an article on this subject would be interesting to a great many readers."

FRAMES FOR TENDER PLANTS.—W. M. G.,

asks: "Will you please inform me through the GARDENER'S MONTHLY, what I can use as a substitute for glass to cover frames in the spring that will keep out the drying winds and hot sun, and at the same time will admit of sufficient sun and light to keep Geraniums in a healthy growing condition. I did not know but cheap bagging might be dipped in some solution that would preserve it and leave it in a transparent condition. As soon as the weather will admit of a covering at night to keep out the frost without fire-heat, I want to remove a portion of my Geraniums into a frame, in order to spread them, and thus give them a better chance to grow."

[The usual preparation is as follows: Take white cotton cloth, of a close texture, stretch it and nail it on frames of any size you wish; mix two ounces of lime water, four ounces of linseed oil, one ounce white of eggs separately, two ounces of yolk of eggs; mix the lime and oil with a very gentle heat, beat the eggs separately, and mix with the former. Spread this mixture with a paint brush over the cloth, allowing each coat to dry before applying another, until they become waterproof.—ED. G. M.]

STEAM HEATING IN GREENHOUSES.—W. D. Phillbrick, Newton Centre, Mass., says: "I notice in your February number an article by R. G. Parker & Co. on Heating Hothouses, in which the writer advocates heating by steam, and says he used five tons of coal to 1,000 feet of glass. I would like to hear what his average temperature was at night in severe weather, also height of house. I have used for several years hot water circulation, having 1,000 feet of pipe in a house of 5,100 feet surface of glass, average height of house 4 feet from beds to glass. In this I keep a temperature always above 40° with only 15 tons of coal to the season. I have a No. 16 Hitchings boiler with good draught. If anybody can show a better doing than this, let us hear from him. Shelter from winds has a good deal to do with this question."

[It would also help to understand the situation if the temperature of the severe weather were given.—ED. G. M.]

NEW CARNATION MARIE.—A correspondent sends us for an opinion, two flowers of a Carnation, packed in dry cotton! All flowers should be sent in damp moss. We are sorry to say that all we could tell from the dried flowers was that they appeared to have been of a very pretty crimson shade of color.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Fruit trees that have proved undesirable from any cause, may be re-grafted with more favored kinds. This is an advantage with some varieties. It takes an age, for instance, to get the Seckel Pear into bearing condition from a nursery raised tree; but by grafting it on one that has already "arrived at years of discretion," the advantage of placing a young head on old shoulders, in this way is soon made manifest.

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes, from a pressure of other work, some valuable scions have been left on hand too late to work. It may be interesting to know, that if such scions are put into the ground much the same as if they were cuttings, they will keep good for six weeks or two months, by which time the bark will run freely, when the scions may be treated as buds, and will succeed just as well as buds taken from young summer shoots.

The Apple is our standard fruit, and may always be relied on with reasonable care. The first care is good food. Some talk about too rich soil. We never saw the soil too rich for the apple. Where any trouble arises in apple culture, it will be safe to attribute it to other causes than rich soil. Kitchen ashes, in which table refuse is thrown, is an excellent top-dressing for apples. We like top-dressing better than any other system of manuring apple trees. Even nice ditch scrapings are good to top-dress with, where nothing else offers. Apple trees are often starved in other ways than by neglect to manure. The apple borer leads to starvation oftener than poor soil. The supply of food is cut off by every move the borer makes. They work at the surface of the ground. Look for them now. If you have no time, set the boys and girls to work. Say they shall have no apples for Christmas or birthday presents if they do not. However, get the borers out somehow, even if by wire and jack-knife. If not soon done they will soon get out themselves, and give you more trouble in the future. After they have left, whether by your invitation or otherwise, keep them out; even though you have to lock the

door after the horse is stolen. There is nothing like tarred paper to keep them out. The paper must be put an inch or more below the ground, and two or three above. We have used gas-tar for years; but find that if the tar contains creosote, as it sometimes does, and the newspaper be very thin, it will once in a while injure the bark. Pine tar will therefore be better.

In grape raising people seem to go to extremes in management. A few years ago the poor plant was in leading strings. It dared not make one free growth, but it was pinched and twisted into all sorts of ways. Now the "prune not at all" maxims are getting headway, and this is as bad, if not worse. First, grape growing was such a mystery it took a life time to study it, and the "old vigneron" was an awfully sublime sort of a personage. He is now among the unfrocked and unreverenced. But there is great art in good grape treatment; and yet this art is founded on a very few simple principles. For instance, leaves are necessary to healthy growth; but two leaves three inches wide are not of equal value to one leaf of six inches. To get these strong leaves, see that the number of sprouts be limited. If two buds push from one eye, pinch out the weakest whenever it appears. The other will be strengthened by this protective policy, and the laws of trade result in favor of larger and better leaves on the leaf that follows. Allow no one shoot to grow stronger than another. If there are indications of this, pinch off its top. While it stops to wonder what you mean by this summary conduct, the weaker fellows will profit to take what properly belongs to them. There is little more science in summer pruning than this; but it takes some experience, joined with common sense, to apply it. This, indeed, is where true art comes in.

South of Philadelphia, the more tender kinds of garden vegetables may now be sown—beans, corn, cucumbers, squashes, etc.—that it is not prudent to plant in this latitude before the first of May; and tomato, egg-plants, etc., may also be set out in those favored places. Cucumbers, squashes, and such vegetables, can be got forward as well as tomatoes, egg-plants, etc., by being sown in a frame or hotbed, and potted off

into three-inch pots. They will be nice plants by the first week in May. Rotten wood suits cucumbers and the squash tribe exceedingly well as a manure. Tomatoes and egg-plants that are desired very early are best potted, soon after they come up, into small pots. They can then be turned out into the open air without any check to their roots. Of course, they should be gradually inured to the open air—not suddenly transferred from a warm and moist air to a very dry one.

Early York cabbage for early use should be set out early in this month. An excellent plan is to make the holes with a dibble first, where the cabbage is to be set; then fill the holes with manure-water; and after the water is soaked away, set in the plants. It is rather more laborious than the old way, but the cabbage grows so fast afterwards that it pays pretty well.

Celery is an important crop, and should be sown about this period. A rich moist spot shaded from the mid-day sun, should be chosen; or a box in a frame, if convenient.

Bean-poles may be planted preparatory to sowing the Lima bean in May. Where bean-poles are scarce, two or three hoop-poles, set into the ground, and tied together at the top, make as good a pole, and perhaps better.

Dwarf beans should have very warm and deep soil—sow them only two inches apart. The Valentine is yet the best early, take it all in all.

Peas should be sown every two weeks for a succession—do not make the soil very rich for them.

COMMUNICATIONS.

NON PRODUCTION OF FRUIT TREES.

WHAT ARE THE CAUSES?

Read before Penna. Fruit Growers' Association, Jan. 22d, 1880.

BY H. M. ENGLE, MARIETTA, PA.

I am well aware that this question is easier asked than answered. There are no doubt various causes of unproductiveness, but I wish to call the attention of fruit growers to a custom that may have such effect. I apprehend nothing else than to be pronounced heterodox on pomology; but as orthodoxy is sometimes forced to change base, it may be counted in as orthodox some day. It is also true, that it is easier to controvert a theory than to prove or establish it. Has it ever occurred to nurserymen and fruit growers, that the cutting of scions from

nursery rows for root grafting for a succession of years tends to strengthen simply wood growth, and at the same time weakens the tendency to productiveness, or at least retards it? I refer more particularly to apples and pears, as peaches frequently form fruit buds in nursery rows one year old from bud; the departure therefore can not be so great as in some other fruits. For the sake of counter argument I will admit that the custom of cutting scions from nursery rows has been practiced for many years, but at the same time a large proportion of scions has also been taken from bearing trees, hence the difficulty of proving such a theory if it were correct. To test this question thoroughly would require many years of experimenting. Experience has taught nurserymen that scions cut from young thrifty trees, whether in nursery or orchard, when grafted will make more vigorous trees than when taken from old bearing trees.

Fruit growers also know that generally the most vigorous growers are more tardy bearers than those of slow growth. We know very well that some varieties bear earlier than others, but it must be admitted that not unfrequently trees of the same variety purchased from the same nursery, and planted in the same orchard side by side, at the same time, do not make uniform growth nor bear uniform crops. That there should be uniformity in every respect could hardly be expected, but the results are oftentimes as opposite as of two varieties; one will go into fruiting early, while another is tardy; or one will bear regular crops, while another will bear only alternate years.

Now, there must be a cause, or causes for all this. Is there any other theory more plausible to account for these differences? There are numerous instances in both vegetable and animal kingdoms which confirm the theory of variations in nature. Take for instance all the present varieties of maize, which doubtless descended from one parent, of which there are now possibly more than a hundred, and yet many so unlike each other as they well could be made, and still all retain the original character so far as it can be traced back. It is conceded that the comparison is not quite fair where changes are produced by seed selection. But take the potato, which can, and has been materially changed by selection of tubers. For instance by selecting such as ripen earliest for a term of years, we may have the same variety

earlier than the original. The same effect will be produced in an inverse ratio by selecting seed from such as ripen latest. The potato may also be changed in other respects by selecting for seed the roundest or longest for a succession of years, or select seed from stocks that have tubers of most uniform size, or any other desirable character, and a fixed type may eventually be obtained of just what is desired. When we glance over the great variety of shrubs and flowers originated from sports, and established as new varieties, which have by proper selection for a term of years become fixed so as to retain their identity, we must conclude that from some cause nature is at times turned out of its regular course in producing its like; and when once turned out, the stock or plant may by designed selection for a series of years never again resume its former character.

This line of argument might be continued indefinitely in the vegetable kingdom. The laws which govern the animal kingdom are in a great measure analogous to those which govern the former. The changes and improvements that have been made with domestic animals is truly astonishing; for instance with sheep, cattle and hogs; to accomplish which required time, perseverance and judicious selection.

We, as pomologists, must admit that although much has been accomplished in our line, breeders of domestic animals have made greater strides in theirs. In animals, as in vegetables and fruits, all the most desirable qualities have never yet been produced in one individual. The stock breeders who have aimed to produce beef animals have established the Shorthorns. Those who aimed for richest milk and butter production, have their ideal in the Jerseys and Guernseys; while those who had in view milk and cheese production, have established the Holsteins and Ayreshires. At the same time other fancy points in those breeds were sought and obtained, and fixed types established. For instance in the Durhams, roan or red colors and small horns; in the Jerseys, fawn or black colors, black tongue and black wisp. In the Ayreshires the color must be white and brown, or white and red; while the Holstein would be ruled out as bogus if not strictly white and black. Numerous other points have been bred into fixed types by selection, and except an occasional sport, with almost as much certainty as a good mechanic will produce a desired piece of furniture. If we could place some of the

early specimens of cattle from which those improved breeds have descended, side by side with the latter, the contrast would be marked indeed; or when we compare the ancient land-shark or alligator hogs with the present Chester Whites, Berkshires and Poland China pigs, the resemblance is not at all striking. The former were simply scavengers, just what nature intended them to be, while the latter are almost worthless for such purposes. Great progress has been made in producing new fruits and flowers by hybridization and cross fertilization, which is however not altogether germane to the question under consideration; but that the graft influences the root in nursery rows, every intelligent nurseryman knows. And that by grafting upon large trees the reverse is sometimes shown will hardly be denied. If, then, these are facts, may there not be other influences at work which we do not yet understand. May not this continual grafting from non-producing trees weaken the fertility of the trees thus grafted, that when they arrive at bearing age, the least unfavorable conditions will injure the fruit in its embryotic and early stages so as to prevent its perfection. If we understood all the laws which govern the animal and vegetable kingdoms, they would no doubt develop facts not dreamed of in our philosophy.

THE FUTURE OF ASPARAGUS.

BY GENL. WM. H. NOBLE, BRIDGEPORT, CONN.

I lately gave voice through the MONTHLY to sanguine hopes of better asparagus. I fondly thought that, like other joyous helps which the garden gives the table, asparagus might look for a future of stoutness and stature, born of chosen seed as well as heavy feeding. I dreamed of fat shoots, pushing not only out of the deep richness of the bed, but swelling from crowns, fathered by seed, the offspring of careful crosses and choice.

But alas, these were but the fancies of an inexperienced and parvenu. The horticultural heavyweights, high priests and judges have crushed out my fond hopes. The MONTHLY's editor and its British namesake have sat down hard upon my little theory and flattened out its life. Methinks I see their heads, full of judicial lore and complacent dignity, nodding to each other over this question of better asparagus. The elder discoverer of the separate sexuality of asparagus, speaks the opinion of the bench over its "ways

that are dark and peculiar." I reprint it pretty closely:

"If the Court understand herself, and we think he do, we cannot uphold the plan put forward, to better this vegetable through its seedlings. Neither in the books, nor in the nature of things, do we find any warrant for such hope of better asparagus. The plant seems to have reached its highest development in the preadamite gardens. In fact, if we might borrow an illustration from another field of nature, asparagus, like the bumble-bee, never gains much on the bigness of its first hatching. This comes from its sexual nature, first shown by the members of this court. The asparagus is dioecious, its sexes stand apart in different foot-stalks. They are not in its, as in most vegetable life, found in close mating on the same flower, or on different flowers on the same plant. We therefore counsel the sanguine pleader for better asparagus to waste no thought on the morrow of trial for its improvement by seed. It cannot thus be bettered. We very well know, as claimed in the argument, that through all nature choice mating of the sexes leads to better kinds of breeds. That the very fact of separate sexual growth has brought to skillful men a vast advance in almost all that grows for man's food or comfort. But the comparison is a cheat, if not odious. Separate vegetable sexuality, follows not its laws in animal life. Conover's asparagus, or a Rose potato, can be divided by its root-buds, but not a Grand Turk or an Alderney heifer. Therefore we counsel against the likelihood of better asparagus crossings from choice seedlings. We are sorry to refuse our assent to the method presented to us for improving this vegetable, but we are reluctantly compelled to declare it helpless."—*Gardener's Monthly, English Gardener's Magazine.*

Now this "is an opinion as is an opinion." Its reasoning has only been equaled by the massive logic, so much admired by Capt. Cuttle in the great Bunsby,—that mental profundity thus utters these opinions which so filled the Captain with awe,—"For why, which way, if so, why not? therefore, What I says I stands to. Whereby, why not. If so, what odds. Can any man say otherwise. No, awast then!" I tremble before this august court and that profound opinion; I hardly dare to doubt, much less to lift my voice against this array of brains and logic. But, I timidly ask, what barriers has nature put against better kinds of asparagus

through thoughtful sexual mating? Why is this plant shut out from the sure methods of advance open to most others? Wherein does the monœcious or monogamous or polygamous plant hold out higher chances through seedtime and harvest? Why deny to asparagus the hopes and methods that have become fruition amongst the fruits? Has she no right through happy chance or utmost skill or patient trial, to all gained by other growing things? When, by planting or chance, there comes to either of its sexes, plants more stalwart and thrifty, why not plant these apart, and await bigger, quicker and tenderer growths in their progeny?

See how the pear,—sometimes by lucky self-seeding, sometimes by studious trial,—has slowly gained through the ages, till Van Mons or Knight, by wise plan or forecast lifted it into the front rank of fruits. Let us hope that asparagus, so healthful, so widely liked, so delicious a vegetable, so holding, carried its excellence through the seasons, may, in its lower level, greet some Van Mons or Knight.

What has the growth methods of the potato or asparagus, from division of its underground body, to do with the betterment of either through seeding? The Summer Rose, or Hebron, or Peachblow were never born out of any root division, or underground; or tuber-bred of the old styles of this vegetable. Neither Goodrich nor any other potato—Van Mons ever got beyond the tuber he planted, by the replanting of its produce.

Such trial brings every time a Summer Rose, a Peach-blow or a Mercer. You reap the harvest that you sow. Better kinds come only through seed-planting and choice, and this routine many times repeated, before a kind of lasting excellence rewards. So it must be with the asparagus. I close with the memorable words of the immortal Bunsby: "The bearings of this observation lies in the application of it."

[Neither the GARDENER'S MONTHLY nor the *Gardener's Magazine*, has ever thought of saying that the asparagus could not be improved by seed.—ED. G. M.]

EDITORIAL NOTES.

SWEET HOME, BLACK-CAP RASPBERRY.—This Illinois variety, a seedling from Lum's Everbearing, is commended by Tyler McWhorter of Aledo, a reliable gentleman who says that while he would plant the Doolittle Black-cap for an early crop, he would replace the

Mammoth Cluster by the "Sweet Home," as it is larger and firmer, and the plants have a more stocky growth.

THE LEADING APPLES IN NEW YORK.—After all the endeavors to popularize different apples in Western New York, the bulk of those we see in various markets from that region, are Baldwin, Rhode Island Greening, Spitzenberg, and Northern spy. The two last bring slightly better prices.

THE BOTTLE GREENING AND COOPER'S MARKET APPLES.—Though not of the highest quality, Mr. Hooker says these apples find a ready sale in Western New York.

THE BRIGHTON GRAPE.—It is not often that new fruits not only stand the test of experience, but grow in popular favor. The Brighton Grape seems one of these few good things. It ripens about the same time as the Hartford Prolific, and may therefore be classed with the early varieties.

EARLY GRAPES.—M. P., writes as follows: "In a catalogue of a responsible Ohio nurseryman received a short time ago I notice, Moore's Early Grape, offered for sale, and it is claimed for this grape that it is ten days earlier than Hartford, and twenty days earlier than Concord. This seems such a remarkable advance, that I cannot help asking if this has been the experience of others besides the nurseryman named? If this grape will universally ripen twenty days ahead of the Concord, many of us may look for ripe fruit in July."

BEURRE CLAIRGEAU.—A correspondent of the *Gardener's Chronicle* notes that the same variety of Pear does not ripen at the same time in the same place in different seasons. He says the Beurre Clairgeau "will not be fit for use this month (January) as usual." In the United States it is voted as not fit for use any month, though there are many struck by its beauty who try to use it.

THE GRAPE ROT.—This, the great pest of the Western grape grower, is not believed by Mr. Bateham to result from weakened or diseased vines. He has come to this conclusion after a very wide experience. His observations tend to show that the rot follows peculiar hygrometrical and thermal conditions, which will act unfavorably on normally healthy vegetable tissues. We believe Mr. Bateham to be wholly correct.

PACKING APPLES FOR DISTANT MARKETS.—Many believe that some packing material should be used in the barrels to keep apples from bruising each other; but we have never known this to be necessary when the apples were sound, and properly barreled. After the apples are in, they should be subjected to a pressure by the lid, to the extent of even pressing some of the fruit into each other. In good air-tight barrels, they will not move or bruise each other. It is only after the air gets to the bruise by the pressed-in apple, that decay follows; while the two apples are pressed together they will not rot.

RICKETTS' GRAPES.—In the *Rural World* Mr. Husmann gives an account of a visit to this well-known raiser of seedling grapes, and says:

"We had expected to find Mr. Ricketts' seedling grapes highly cultivated and in a favorable location; we had somehow got the idea into our head that they were very much pampered and petted; we had twice admired his grapes at exhibitions, and they seemed to us too fine to be produced by ordinary culture. We found just the reverse of this, they were poorly cultivated, pruned very long, had an excessive crop of grapes, and we do not think the location a favorable one. We think it but just to Mr. Ricketts to state this; and he has certainly achieved remarkable success."

WINTER NELIS PEAR.—Californians say, on healthy Quince stocks they can often get this pear to weigh half-a-pound. We fancy no one in the Atlantic States ever saw one this size.

"CULTIVATING" FRUIT TREES.—Some of our excellent fruit growers still insist, that jaggng away at the young feeding roots of orchard trees all summer long is "cultivating" them. We have often shown that this kind of "cultivation" has little more than antiquity to recommend it,—for it is ancient, as any one can see by referring to *Æsop's Fables*. Our excellent practical cotemporary, the *Garden* seems to be of our opinion. It says:

"In passing by Kensington Palace the other day I saw men go through the old and sad process of cutting off all the points of the bushes and digging among their roots. The surface afterwards was, as usual, a mass of young fibres. It is curious how much that is wrong may be practised for ages by the very people who are supposed to know the right way. There is no more reason why the young roots should be mu-

tilated annually in an established shrubbery than those of a young specimen Conifer on the lawn."

NEW PEAS.—It is remarkable that amongst the myriads of varieties of peas, new or old, Daniel O'Rourke is still the most popular. Thousands of bushels are raised by single firms alone for seed.

DEGENERATION OF POTATOES.—These "die out" occasionally, and new varieties have to be raised to take their places. They die from enervation, and not because varieties "naturally" wear out. Plants are often injured by insects or disease, and mature before the tubers are "ripe." Such "seed" produces inferior plants. Wherever the potato plant lives to flower freely, and not die away before its time, its tubers will produce plants again showing no signs of wearing out.

MUSHROOM GROWING.—We have frequently stated that the chief reason why so many fail in growing mushrooms is because no care is taken to prepare the material first. In the usual way fermentation is too rapid. The *Journal of Horticulture* gives the following good advice:

"I do not know that I have anything out of the common way to say about the preparation of material for the bed, but I will briefly describe the system. Droppings are collected every morning from the stable litter and placed in an open shed, where they are turned over every day to prevent burning. When there is a sufficient quantity for a bed it is removed to another open shed, where it is allowed to heat a little, and the turning is continued for ten days or a fortnight, till it becomes sufficiently dry that it will not bind together much when squeezed in the hand. It is then taken to the mushroom house and made up as firmly as possible to a depth of 11 or 12 inches. The firmness prevents its heating too violently, and consequently drying and exhausting itself, and causes it to retain the heat for a long time. It cannot be too firm. A thermometer is placed in the bed as soon as made, and it is expected in a few days to show a temperature of 85° to 100°. As soon as the heat is declining the spawn is inserted; 95° for a day or two will do no harm, but we must be sure that the temperature is declining, for a higher one would probably be fatal."

THE SWEET POTATO IN ENGLAND.—We called attention recently to the curious fact that only now, after a hundred years of American experience, were the English people beginning to know anything of sweet potatoes. In a recent number of the *Garden*, we find this further note: "I amused myself on one of those recent cold days by roasting some sweet potatoes in hot ashes—roots that I bought from Mr. Garcia, in Covent Garden. I mean the Sweet Potato of North America, which is so good when roasted or baked. For the first time I found that these Covent Garden specimens turned out very well. The sweet potato is an excellent vegetable, and I should advise our American friends to send us quantities of well-ripened roots, and also tell us how to cook them. I noticed in America, that just as with our common Potato at home, there are wet and dry tubers, mainly owing to differences of soil. I understand those grown in the sandy soils of the South are much better in America than those raised elsewhere. It seemed to be a greater favorite than the common potato, which was there called the Irish Potato to distinguish it from this one. I believe it to be more nutritious than the common potato, and when good it turns out something between a sweetmeat and a vegetable. To import a vegetable which our climate prevents us growing, and which in consequence is a novelty to most people, is very desirable. I do not know if their price is high in America, but it would be a great boon if they could be sent here in such quantities as would allow of their being used as food. At present they are merely Covent Garden curiosities."

PROHIBITING THE IMPORTATION OF LIVING PLANTS.—For fear of introducing the Phylloxera, the government of the Cape of Good Hope, have absurdly prohibited the importation of living plants and bulbs of all kinds. This is on a par with much of our own legislation on horticultural and agricultural matters, and it is perhaps a comfort to know that stupidity is a world-wide complaint.

THE ALEXANDER PEACH.—A writer in Shirley Hibberd's *Gardener's Magazine*, says this has beaten Early Beatrice, Early Louise, and the other famous early Peaches in England; and "is without question one of the most valuable fruits received from the other side of the Atlantic."

FORESTRY.

COMMUNICATIONS.

LARGE LIVE OAKS.

BY W. ST. J. MAZYCK, HAGLEY PLACE, S. C.

Neither of the five live oaks, *Q. virens*, of which I write, are as large as the Cawthorpe Yorkshire oak, mentioned in your January number, but they are very respectable sticks of timber nevertheless. At Old Town plantation, on the west bank of the Ashley river, the site of Charleston, which was abandoned about 1680 for Oyster Point, there stands a live oak that measures thirty-two feet in circumference. One side of this tree was injured many years ago by fire. It must have been a big tree when the Indians burnt the town.

At Peach-tree plantation, on the west bank of the South Santee, there is a live oak that measures twenty-nine feet around, the first limb measuring sixteen feet around, and extending seventy-five feet. At midday it shades half an acre of ground. Prof. M. Numey said it was probably the finest tree this side of the Mississippi river, and that it was worth a man's time and money to come from Canada to see it,—rather an expensive trip in 1846 when he saw this tree.

At Weehonoka plantation, on the east bank of the Waccamaw river, three live oaks grow near each other. The first one measures twenty feet, the second seventeen feet nine inches, and the third fifteen feet around. These trees were all measured in the smallest part; all of them have the hour-glass shape to a greater or lesser degree. Not far from these last trees there is a common fox grape-vine, that measures four feet and two inches round.

EDITORIAL NOTES.

HOW TO PREPARE SUMAC.—The *New York Times* says: "Sumac is not a merchantable article until it is properly prepared. The preparation consists of gathering the leaves in July, along with the fine twigs, drying them under cover, threshing them with a flail, sifting out all the coarse stuff, grinding the fine matter into powder under a vertical rolling millstone, and packing in bags of 200 pounds. When gathered at the

proper season and prepared in the best manner, American Sumac, even that grown in northern localities and heretofore supposed worthless, is said by tanners to be equal to the best Italian. The trouble is that it is not yet prepared properly nor gathered at a season when its coloring properties are just right, so that it gives a dark shade to the leather, when a clean white shade is desired. For this reason the very best Virginia sumac sells for half the price of the foreign, and New York sumac would be unsalable in the market at any price, because tanners would not dare use it, lest their leather might be spoiled.

SCARCITY OF THE HEMLOCK SPRUCE.—Official returns show that in New Brunswick the Hemlock Spruce (*Abies canadensis*,) is becoming as scarce as in adjacent parts of the United States. "It is found only in certain parts of the island, and is rapidly diminishing, owing mainly to the ravages of fire, to which it is peculiarly subject, and to the fact that a large number of trees are cut down for the sale of the bark only, the timber being left to rot in the ground." The reports from the other parts of the dominion bespeak the same reckless waste of all kinds of timber. In British Columbia, which has an area about twice that of the United Kingdom, two-thirds, or in round numbers 110,000,000 English acres, are still covered with timber. A variety of the Hemlock Spruce is one of the commonest trees there.—*Timber Trades' Journal*.

CURIOSITY OF THE WOODS.—Says the Salisbury, N. C., *Watchman*: "Seven miles west of Salisbury, on the premises of James B. Gibson, is a botanic curiosity in the shape of a gum tree. About ten years ago one of the prongs (it branched into a fork about a yard from the ground) was cut off, and in falling one of its limbs caught on a limb of the remaining prong. It was not further molested, and the limb of the dependent tree, now an inch and a half in diameter, grew into the one that held it up. The remarkable feature is that the rootless tree still lives or grows, though not so fast as its twin,—that a tree 25 feet high, with abundant foliage, should be supplied with sufficient sap from the contact of the above-mentioned limb, a surface of probably not more than three square inches."

A WONDERFUL TREE.—In the birch wood of Culloden, Scotland, there is a remarkable tree worthy of note. Somewhere about thirty years ago a little giant of the forest was blown down in a storm, and fell right across a deep gully or ravine, which it completely spanned, and the top branches took root on the other side. From the parent stem no less than fifteen trees grew up perpendicularly, all in a row; and there they still flourish in all their splendor, while the parent stem evinces no token of decay. Several of the trees are not less than thirty feet high. The tree is a large fir.

RE-WOODING OF MOUNTAINS IN FRANCE WITH *AILANTUS GLANDULOSA*.—A writer in the *Bulletin de la Societe d'Acclimation de Paris*, says the *Gardener's Chronicle*, recommends the *Ailantus* for re-wooding the mountainous districts of France. He asserts that the Russians successfully employ it in reclaiming the arid steppes of the interior of Russia; and the Eastern Railway Company of France have planted it along their line, to bind the earth of the cuttings and embankments. One of the merits of the *Ailantus* is that it will grow in almost any soil, including dry soils. The wood is used in carriage building and in joinery; and the leaves are valuable in two ways. In the first place they stink so vilely, and are of such a disagreeable taste, that animals do not browse upon them when fresh, though they will eat them when dry. Secondly, the leaves serve to support the silkworm (*Attacus cynthia vera*); in fact, this silkworm eats the leaves of the *Ailantus* by preference. Now that a means of preparing the silk spun by this worm has been discovered, both the worm and the tree become more important, and it is confidently hoped that the rearing of this worm will prove a profitable industry."

THE WALNUT AND ITS USES.—A scientific gentleman, commenting upon the abundant supply of walnuts now arriving in the French capital, enters upon a learned discussion as to the merits and virtues of that fruit and the tree which bears it. He disposes, first, of the vulgar prejudice still prevalent in many parts of France to the effect that it is most dangerous to repose under the shadow of the tree. In support of such a theory may be quoted the *dicta* of Valmon Bomare, who states that the shade of the tree gives rheumatism; of Bayle, who pretends that it is a cause of fevers; and of Theophrastus,

who makes out that it tends to stupify and deaden the energies of the brain. Finally, there is the popular theory that the Italian terms *nux* and *nuces* are derived from various *nocuous* qualities either of the tree or its produce. Our French *savant* has made experiments of his own, and is able to declare that he has neither caught fevers nor rheumatism by lying under walnut trees, while his own writings may, no doubt, be accepted as a conclusive proof that he has not suffered in the way suggested by Theophrastus. Another celebrated saying, *à propos* of the walnut tree, is that which connects it with wives and spaniels in a sort of semi-proverbial recommendation not to spare the rod. The Latin couplet is, however, still more uncomplimentary to the fair sex than that which we have in English, inasmuch as it extends the injunction to all women, and not only to wives, and associates them and the walnut tree, not with spaniels, but with the most despised of all beasts of burden. We are further informed by the French professor that the juice and odor of walnut leaves are a protection against insects of the least agreeable kind, and that the English use a decoction of it for rubbing on their hair (*cheveux*), or, as he probably means, their horses (*chevaux*), in order to keep away the flies. As for the fruit itself, the old rule of the school of Salerno was "nuts after fish, and cheese after meat;" but modern gastronomists have relegated nuts to a stage in the repast at least as late as cheese. The authority from whom we quote, declares that there is nothing indigestible in the fruit, provided only that it is fresh, and has not been kept till the juices have dried up and the solid tissues begun to grow mouldy, as they are apt to do after a few weeks or months.—*London Globe*.

FOREST CULTURE.—A most successful undertaking in forest culture is being carried forward by Mr. B. F. Peck, of Bethany, N. Y., who commenced his plantations four or six years ago. He has ten acres in his new woodland plantation, the soil being far from fertile, a clay loam resting on a shell work near the surface. The varieties of trees grown are European larches and Scotch pines. At two years from the seed these young larches are trees, planted to places where they are to remain, four feet apart each way, an acre thus containing 2,640. Those that have been set four years are now from eight to ten feet high, vigorous in growth, and branching so extensively as to make it difficult for one to pass through the "woods." These are from

one and a half to two inches in diameter at the ground. Those set six years are twelve feet high, more than three inches in diameter, while a few that have been set eight years are from eighteen to twenty-four feet high and from four to six inches through. The pines are planted out sixteen feet each way. In a few years Mr. Peck will begin to thin out the larches, using them for poles and small fence posts. The land is thought to pay as well in these trees as if planted to ordinary farm crops, while the advantages they afford in protection to other crops and to the farm buildings is inestimable. Mr. Peck believes if twenty per cent. of our old cleared land was planted to forest trees, it would render the remaining eighty per cent. more productive and valuable than the whole now is.

SCRAPS AND QUERIES.

DURABILITY OF TIMBER.—“Creek,” writes, and we fully agree, “In your explanation of the reason why reports on the duration of timber vary so, you overlook the fact that good

healthy trees will make more durable timber than such as are sickly from age or disease. There is great cry about preserving our old forests, but much more wisdom would be shown in the encouragement of new plantations. Timber from old trees is not near so durable as that from trees about middle age.”

CATALPA BUNGEI.—Storrs, Harrison & Co., Painesville, O., write: “As there is considerable interest at present manifested in the different varieties of Catalpa, we mail you a pod of Catalpa Bungei. This Catalpa appears to be perfectly hardy here, and a free grower. Trees six years of age are eighteen inches in circumference. We are growing the speciosa quite largely, but do not see as it is any hardier than this one. We imported this under the name of Bungei, but as some of our leading nurserymen claimed Bungei to be a dwarf, not growing more than four or five feet tall, we thought the French nurserymen had made a mistake, and we supposed it to be bignonioides, but it differs from that variety even in the seeds.”

[The French nurserymen are sustained by the authority of De Candolle.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CATALPA SPECIOSA.

BY DR. GEO. ENGELMANN, ST. LOUIS, MO.

When examining the specimens sent us originally by Dr. Warder as *Catalpa bignonioides speciosa*, we suggested from the peculiar pectinate coma to the seed, that it would probably take rank as a species. By the following from the *Botanical Gazette*, a cheap but worthy publication, by the way, to which every working botanist should subscribe,—it will be seen that Dr. Engelmann definitely establishes it as such:

“*Catalpa speciosa*, Warder.—A middle-sized tree with grayish-brown much cracked or furrowed, at last slightly flaky bark and light, yellowish-gray wood; leaves large, truncated or more or less cordate at base, slenderly acuminate, soft downy on the under side, inodorous; flowers in large and loose panicles; tube of the

corolla conical, longer than wide, its lower part scarcely protracted; upper lip before its expansion longer than the other lobes and enveloping them, lower lobe bilobed, inside of corolla slightly marked at the throat with red-brown lines and with two yellow bands at the commissures of the lowest with the lateral lobes; stamens and style as long as the tube; pod terete, strongly furrowed; wings of seed about as long as the seed itself, rounded at the ends and split into a broad coma.

Common in the low, rich, sometimes overflowed woodlands near the mouth of the Ohio, along the lower course of that river and its confluents, and in the adjoining lowlands of the Mississippi; in the States of Illinois, Indiana, Kentucky, Tennessee, Missouri and Arkansas; according to Michaux abounding near the borders of all the rivers which empty into the Mississippi further south; whether the localities

cited by him, of West Florida produce this or the Eastern species, is at present unknown. Flowers in May. This tree has quite an interesting and instructive history. It was already known to Michaux and to many botanists and settlers of those regions; even the aboriginal Shawnees appreciated it, and the French settlers along the Wabash named it for them the Shawnee wood (Bois Chavanon) and prized the indestructible quality of its timber; but the botanists, even the subtle Rafinesque, who roamed over those very regions, seem to have taken it for granted that it was not distinct from the Southeastern *Catalpa bignonioides*. To me the fact that these trees, then not rarely cultivated in St. Louis,* produced their larger and more showy flowers some ten or fifteen days earlier than the Eastern or common kind, was well known as early as 1842, and their blossoming has since been annually recorded in my notes on the advance of vegetation, but I had not the sagacity or curiosity to further investigate the tree. It was reserved to Dr. J. A. Warder, of Cincinnati, in 1853, to draw public attention to it. He was struck with its beauty in the streets of Dayton, Ohio, where a few stragglers were cultivated, and described it cursorily in his journal, the *Western Horticultural Review*, Vol. III, page 533, without deciding whether a distinct species or a variety, and without assigning a name to it. It was soon named, however, privately as it seems, by him and his friends *Catalpa speciosa*, and was propagated as a more ornamental form. Thirteen years later I find in the catalogue of J. C. Teas' nursery, Baysville, Indiana, for 1866, *Catalpa speciosa* offered, the 100 one year old seedlings for \$1.50. But only within the last few years the beauty and importance of the tree has made a greater impression on the public mind, principally through the exertions of Dr. Warder himself, Mr. E. E. Barney, of Dayton, and Mr. R. Douglas, of Waukegan, Ill. The latter was so much struck with the future importance of this species that in the Autumn of 1878 he collected on the lower Ohio 400 pounds of its seed for his own nursery and for distribution to all parts of the world.

Catalpa speciosa replaces *C. bignonioides* entirely in the Mississippi valley. It is readily distinguished from it by its taller and straighter

growth, its darker, thicker ($\frac{1}{2}$ –1 inch thick), rougher and scarcely exfoliating bark, (in the older species it is light gray, constantly peeling off and therefore not more than two or three lines thick); its softly downy, slenderly acuminate and inodorous leaves (those of *bignonioides* have a disagreeable, almost fetid odor when touched), marked with similar glands in the axils of the principal veins of the under side by its much less crowded panicle, and by its much larger flower, fruit and seed. The flowers I found two inches in the vertical and a little more in the transverse diameter. In the other they have one and two-thirds inches in each diameter; the lower lobe is deeply notched or bilobed in *speciosa*, entire in *bignonioides*; the tube in the former is conical and ten lines, in the latter campanulate and about seven lines long, in the first slightly oblique, in the other very much so, the upper part being a great deal shorter than the lower one, so that the anthers and stigma become uncovered. The markings in the flower of the old species are much more crowded and conspicuous, so as to give the whole flower a dingy appearance, while ours looks almost white. The upper lip of the corolla before expansion extends beyond the other lobes and covers them like a hood in the Western species, while in the Eastern it is much shorter than the others and covers them only very partially. The pods of our species are eight-twentieths inches long, seventeen-twentieth lines in circumference, dark brown, and strongly grooved. When dry, the placental dissepiment very thick. In the Eastern species the pod is nearly the same length, but only nine-twelfth lines in circumference; its grooves very slight, its color pale, and the dissepiment flat. In both species the pod is perfectly terete before the valves separate, after that the valves of ours remain more or less semiterete, while the much thinner ones of the other flatten out so that they seem to indicate a compressed pod. The elongated seeds winged at both ends, are of about equal length in both species, but in *speciosa* they are much wider, ($3\frac{1}{2}$ –4 lines), and the wings have more or less rounded ends which terminate in a broad band of rather short hair. In *bignonioides* the seeds are only

* It seems singular that the common Eastern species has in our streets almost completely supplanted the much handsomer native.

† I may here remark that *Catalpa*, probably like all its allies, is proterandrous, the anthers open in the morning and the lobes of the stigma separate and become glutinous towards evening, the upper lobe remaining erect, the lower turning down close upon the style. I have not ascertained how they are impregnated as at that time the anthers are effete, and by the following morning the lobes of the stigma are again closed.

two and a half to three lines wide, with pointed wings, and their tips terminating in a long, pencil-shaped tuft of hair.

Our tree is larger, of straighter growth, and being a native of a more Northern latitude, is hardier than the Southeastern species. The wood of both is extremely durable, perhaps as much so as that of our red cedar, and has the advantage over it of a much more rapid growth and of possessing only a very thin layer (two or three annual rings) of destructible sap wood. But of these qualities and of its adaptability to many important uses, others, and especially Mr. Barney in a recent pamphlet, have given a full account. It is already extensively planted in our Western prairie states, and especially along railroads, for which it is expected to furnish the much needed timber in a comparatively short time.

NICOTIANA SUAVEOLENS.

BY MRS. E. MELROSE, MASS.

Reading in the February MONTHLY, Mr. Henderson's experience with *Salvia splendens* coerulea, has tempted me to give my own with a plant under the name which heads this note. I bought my plant of a Boston florist, also. It professed to be a rare novelty, and it was, though not in the way I expected. The description in the catalogue represented it as a compact-growing plant, of not over two feet in height. A most abundant bloomer, with large pure white flowers, delightfully fragrant, and specially suited for bouquets, as it bloomed all summer. I felt particularly happy in the possession of this plant. Pure white, elegant, fragrant flowers, suitable for bouquets, don't grow on every bush. I gave it a rich soil, and a conspicuous position near the street, between my Lilies and Tea Roses. Then I smiled complacently to myself as I thought of the envy and admiration it would excite, and how passers-by would pause in wonder and delight at this rare plant. I must confess that they did pause; but not exactly the way my fancy had pictured. The way that plant grew was frightful to contemplate. It was fully seven feet high, with many strong lateral branches of two or three feet. It so crowded out and overtopped everything else, that I was in despair, when one happy night, (Aug. 19, '79) a fearful tornado of wind and rain came to my aid, and *Nicotiana suaveolens* (?) broke short off about two inches from the ground to my great relief. How large it would have been when it

got its growth I shall never know. I am also in utter ignorance to this day as to what the plant really was, for though I wrote to the florist of whom I bought it, enclosing a stamp, he did not deign to reply. Perhaps he did not know himself. I have written this with the hope that the good Editor of the MONTHLY, or some of his wise correspondents will take pity on my ignorance and enlighten me, if they can do so by a mere description. Both stock and leaves were of a pale, pure pea-green. The leaves, which were on long petioles, were broadly ovate, from four to five inches long, glabrous, entire, and of a leathery consistence. The flower was utterly insignificant, without either beauty or fragrance. In color they were a pale, dingy greenish yellow, and in form stiff, erect tubes, about the size of an ordinary lead pencil, an inch to an inch and a-half long, and about as broad at the top as a silver half dime. They were scattered along a straggling, leafy raceme, never more than two or three open at a time, as they soon faded. I am familiar with the *Nicotiana* cultivated for tobacco, but this was not at all like that. Friends! Countrymen! Do you know this novelty?

[The plant appears by the description to be the true *Nicotiana suaveolens*, which is a New Holland plant, and a coarse weedy thing of no particular interest to the cultivator, except that it is reported to be very sweet at night. Those who sent it out in such a flaming way, should be ashamed. It may be said however that American seedsmen often get these seeds from Europe, and merely copy the descriptions sent with them. But they ought to know the reputations of those they deal with, if they wish to give other people's cuts and praises as their own.—Ed. G. M.]

DISTRIBUTION OF PLANTS.

BY E. S. MILLER.

I was very much interested in the "Distribution of Plants," by Rev. L. J. Templin, in the January number of the GARDENER'S MONTHLY. It has been a subject of interest to me. I think birds are common carriers. A very familiar instance is of the cedar bird distributing *Juniperus Virginiana*. I have in mind a good hedge of cedar which has grown up along a rail fence; the seeds were voided by birds while sitting on the fence. It may be that birds are the cause of rare plants being found in new localities. It is well known that Long Island,

particularly the eastern extremity is a resting and feeding ground for migratory birds. Through their agency doubtless may be ascribed the appearance of plants not common to this section of country. Mr. Young and myself found a number of rare plants, mostly around ponds. For example, *Rhyncospora nitens*, Gray; not before reported north of North Carolina. *Rumex Englemanni*, a western species; *Galactia mollis*, Mx., a southern species; *Polygonum ramosissimum*, Mx., a western species, and *Eleocharis tricostrata*, Torr., a southern species.

Dr. Allen, of New York, found on Montauk Point, in 1878, *Glaucium luteum*, Scop., in great abundance. I believe aquatic birds carry particles of mud on their feet containing seeds; possibly this has been one way of plant distribution. The way *Hamamelis Virginica* has of distributing its seeds is wonderful. The pods explode and send the seed with considerable force. I have found seeds fifteen feet from the pods in which they grew, and that after the pods were taken from the trees.

BLUE AND OTHER COLORED GLASS.

The London *Gardener's Magazine* gives the following translation of a paper read recently before the Central Agricultural Society of France which will be read with great interest in our country where General Pleasanton's original experiments attracted so much attention:

A series of experiments, not originally intended to prove the action of colored light on vegetation, has nevertheless brought to my notice some facts which may be of great use in horticulture.

The effects of the colored rays of the solar spectrum have already been made the subject of investigation by some of the most distinguished savants of the age. The mere enumeration of their labors would be too lengthy for repetition here.

That eminent physiologist, M. Paul Bert, has of late again devoted himself to the study of this interesting and delicate problem. But, so far, none of these researches, important as they are in their bearings on plant life, have led to any practical method of accelerating the growth of plants in an exceptional manner. Wherever colored light has been used alone, without the interposition of white light, there the plants have withered and died. M. P. Bert's experi-

ments have furnished conclusive proof of this fact. All colors taken singly, are noxious to plants, he tells us.

It is an essential condition of vegetation that plants should not exist continually in artificially colored light. Therefore, when the conditions under which plants were intended to exist have been departed from too widely, negative results have invariably followed. But will it be the same when a plant is exposed to the action of particular rays of colored light modified by the presence of white light? Here, as I have just remarked, some facts of great importance to horticulture have come under our notice. The sensation will not have been forgotten which was created in the scientific world when M. Poey communicated to the French Academy of Sciences the marvellous results obtained by the American General Pleasanton, with vines grown in a vinery illumined with violet and white glass, and which in a very short time produced an exceptionally abundant crop of grapes.

Results as exceptional, according to the same authority, were obtained in fattening cattle and pigs by the same means. But here we have to do with plants, not with live stock. I cannot confirm these statements, but I shall no longer attempt to invalidate them, inasmuch as experiments of my own in pursuing a totally distinct line of research have taught me, as will presently be seen, that the views of the American General are not to be entirely rejected.

I shall not attempt to explain the phenomena scientifically; whether they are chemical, physiological, or merely mechanical, it is impossible for me to say. However this may be, the facts reported by M. Poey suggested to me the idea of the experiments of which I am about to speak; and if I did not exactly get what I sought, the results obtained, in my opinion, largely compensated me for my failure.

Some years back the Natural History Museum received from Monte Video a very small herbaceous plant, forwarded by a French naturalist, M. Lasseau, and labeled "Pretty little *Monothacea* from neighborhood of Monte Video." This humble-looking little acaulescent herbaceous plant, consisting merely of seven or eight myrtiform leaves, justified its appellation, a pretty little plant. It grew well at the museum, but never blossomed; the blossom invariably failed, but not all at once. After the invariable fall of an almost microscopic corolla, the ovary continued its normal evolu-

tion until it at length attained full maturity. The seeds, four in number, also ripened very well. Of course it was at once seen that this was an instance of what botanists call clandestine fertilization.

M. Houlet, the able chief of the hothouse department of the museum, begged me one day to determine this curious plant for him. "Wait until it blossoms," I said. But as the blossom was very long in making its appearance, I examined the minute corolla with the microscope, and this, together with the indications furnished by the seeds, enabled me to refer it to the genus *Stenandrium*. The clandestine fertilization continued. A hundred times the biological conditions of this curious plant were changed without altering its temperament.

Linnaeus, in his *Hortus Upsaliensis*, gives a not altogether correct explanation of this phenomenon. Dillenius speaks of it under the head of *buellia*, in his *Hortis Etkamensis*, without giving a more correct explanation of the persistent anomaly.

The entire family of *Acanthaceae* furnishes a great number of examples, with the difference that here clandestine alternates with normal fertilization. I then conceived the idea of subjecting this remarkable plant to the influence of variously colored light, by a modification of the American method. I was in hopes that the stimulus given by some one or other of the colored rays of the spectrum would enable me to determine this singular anomaly.

I mentioned my plan to the eminent professor of horticulture, M. Decaisne, who, with his usual courtesy, lost no time in placing at my disposal the necessary space, and the requisites for a series of experiments in the shape of cylindrical open-mouthed glasses, in which the light and air could circulate freely. These glasses had double sides of colorless glass. In the annular spaces between the inner and outer sides were placed colored fluids, representing six colors of the solar spectrum. The glasses were ten to twelve inches deep, with an inner diameter of four to six inches. The annular space filled by the colored fluid in each was six to eight inches in width. In the innermost glass we stood the little plant in its little pot. The light from the sides had therefore to traverse six to eight inches of colored fluid before reaching the plant, whilst above, the white light and air entered and circulated round the plant unchecked.

We had sown a certain number of seeds of the plant in question, and of the young plants so raised we chose six of equal size and age, one for each glass. The fluid surrounding the first glass was a fine aniline purple or violet. That in the second glass was an ammonical solution of salts of copper, giving a beautiful blue. The third had a solution of salts of nickel, giving an equally brilliant green. The fourth was a solution of chromate of potassium, giving a yellow color. The fifth was a solution of bichromate of potassium, producing an orange. And the sixth was a very fine aniline red.

(To be continued.)

EDITORIAL NOTES

HYBRID FLOWERS.—There is yet a wide field unexplored in the physiological conditions involved in the infusion of distinct individuals in one hybrid form. In chemistry the union of two different bodies always results in the same identical product; but it is not so in plant life. If we take the flowers of two distinct species to-day, and cross-fertilize them, the progeny will be different from what the same two flowers would yield to-morrow. Again in the progeny of the same individual cross the young plants raised are different from one another. The progeny partake of some of the characters of both parents, just as a chemical infusion would; but the proportions vary in each. Just now some interesting hybrids have been obtained in England between the Utah yellow columbine and the blue columbine of the Rocky Mountains. Instead of the blue and yellow uniting together and making a green, as in an ordinary color mixture, the blues and yellows in the progeny are just as bright as in the original parents. Some parts of the flowers are blue and some yellow. In one case the nectaries have the bright blue of the Rocky Mountain species, while the petals are golden yellow. Thus it appears that parental influence may affect only particular parts of the offspring; or one parent may influence one part, or one another. But under what law these peculiar influences operate no fellow of any learned association or any other "fellow" has so far been able to find out.

[A kind correspondent sends us the above, as taken from a "Boston paper." It so happens that it came originally from the Science Department of the New York *Independent*, from the

columns of which paper more items of this character are copied without credit,—"stolen," we believe is the New York *Tribune's* expression,—than from any other paper that we wot of. We suppose, however, that unlike the *Tribune*, the *Independent* does not feel so overbad about it, as it has to show that the human race needs regeneration, and must be glad of some awful examples now and then to illustrate its teachings.—ED. G. M.]

FERTILIZATION OF YUCCA.—The *Garden* says: "I fancy insect agency is talked of in a very unscientific way by too enthusiastic followers of Mr. Darwin. I remember reading Professor Riley's dogma that the Yucca could only possibly be fertilized by a certain American insect, and being amused at it because I had several times seen it fruiting well in the south of Europe, and also in France. Probably we should see it oftener if we had a better climate. I now note that Mr. Ellacombe, writing to a contemporary, says: There can be no doubt that the Yucca can be fertilized by other means than by the agency of the Yucca moth (*Pronuba yuccasella*). I have more than once had well-formed fruit on *Y. recurvifolia*, but the seeds did not come to maturity. Dr. Engelmann in his "Notes on the Genus Yucca," says: 'In the botanical garden of Venice I gathered the pulpy pods from a large Yucca aloifolia, about fifteen feet high.' This was the only Yucca fruit seen by me in Europe, though I have since learned that in other instances also, though only exceptionally, fruit and good seed have been produced there, principally by the same species, and very rarely by others. I remember the late Mr. Barillet telling me he had raised a great many varieties of Yucca gloriosa from seed saved in France. However, this mistake on the part of so good a man as Riley, is good sense compared with what we read on this side as to the influence of insects on the color and odors of plants. The statement by Mr. Wallace, for example, that showy flowers are scentless because from their color they are sufficiently attractive to insects may pass for science with some innocent people, but it seems foolish to those who know even only a few garden plants."

There is no doubt in our mind but that too much is made of the color, odor, and other properties of flowers in relation to insect habits, and perhaps Prof. Riley may in his enthusiasm,

have made the mistake which all useful enthusiasts are liable to make, of not being quite logical when putting "this and that together," on a review of his facts. But there is nothing more certain than that Prof. Riley is right in regarding the Yucca, seldom if ever fertilized except by outside aid; and if the Yucca seeds in Europe, it would be well to see whether there is not some nocturnal insect engaged in the work, if indeed the *Pronuba* itself, may not have been imported there. It must be remembered that the insect, though amidst active entomologists for a hundred years in immense abundance, was not known till Prof. Riley found it a few years ago.

DARLINGTONIA CALIFORNICA.—The Editor of "The Native Flowers and Ferns of the United States," would be much obliged if any one who may have the chance to get a plant of this in flower, will send word to this office, in order that a drawing partially made (from an over-blown specimen) may be completed. It could be finished from other people's drawings, but for this work sketches are made solely from nature.

DESTRUCTION OF INSECT EGGS, ETC., BY FROST.—*Reveu l'Horticulture Belge*, says that horticulturists expected to derive some compensation for the wonderfully severe winter of 1879-80, in the destruction of insect eggs and larvæ, and are thunder struck now when M. Lichtenstein tells them that after an examination he finds they have all been able to resist the "very lowest temperature."

If our European contemporaries had profited by their American exchanges, they might have learnt this lesson without waiting for their own experience to teach them. Certainly the *GARDENER'S MONTHLY* has often made a note of the fact.

PINUS BALFOURIANA.—We learn from the *California Horticulturist* that Mr. Lemmon has re-discovered the spot on Mount Shasta from whence Jeffrey obtained the original specimens from which Murray described this species.

THE AMERICAN PHILOSOPHICAL SOCIETY.—This venerable institution, founded by Benjamin Franklin, celebrated its 100th anniversary on the 15th of March.

FOLIATION.—"Zero" says: "Pardon my doubts, but I find nothing in my text books that confirms your answer to "Inquirer," in regard

to the action of roots in aiding leaf development. I should be much obliged if you will give references to authorities for this view."

[We are glad to find a disposition to look into matters of this kind. It is too much the habit to take things on trust. In this case we did not know that "authorities" failed to confirm our view,—but we suppose they must have thought it needless to refer to it, for the truth is apparent to every practical gardener. For instance, a grape vine may have two branches,—one shall be led into a forcing house, the other kept in a cool vinery; the roots remaining in the same border and under the same circumstances in both cases. The hothouse branch will grow and bear fruit, while the other remains dormant till the temperature rises. Again you may cut down a willow log, and if it remains exposed to the summer temperature it

will sprout out into leaves and branches, without any roots at all. These are a few illustrations out of a large number, which might be given, and while we commend the effort of "Zero" to look into his books for authorities, may suggest at the same time that he look a little into the "book of Nature" open all round him. They are both good teachers.—ED. G. M.]

DIRECTOR GOODALE OF THE CAMBRIDGE BOTANIC GARDEN.—We are pleased to learn that Prof. Goodale, who succeeded Prof. Sargent in the directorship of these gardens is meeting with good encouragement. It became necessary to raise a fund of \$60,000 to keep things up to the best, and at the date of this writing one-third of the amount has been contributed by the public spirited citizens of Boston who seem never behind-hand with the means when science is to be advanced.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 11.

BY JACQUES.

The green color of plants is, as is well known, due to the presence in the cells of chlorophyll granules, which consists of a protoplasm base containing a green coloring matter. To the chlorophyll which they contain plants owe their power of decomposing carbonic acid gas, fixing the carbon in their tissues, and setting free the oxygen—a process which in plants corresponds, at any rate in great part, to the process of digestion and assimilation occurring in animals.

The Transactions of the Massachusetts Horticultural Society just issued are very creditable to that useful institution. The discussions on fruit, especially the apple, are the result of experience. On rose culture the pamphlet is very happy, though in our Philadelphia climate we should differ as to some recommendations.

As a proof of the essential identity between animals and plants, Professor Allman in his late address before the British Association, which everybody should read, cited at length the important experiments of Bernard on the effects

of anæsthetics on plants. Bernard covered a healthy and vigorous sensitive plant with a bell glass, introducing under the glass a sponge soaked in ether. In half an hour the plant was in a state of complete anæsthesia; all its leaves remained fully extended, but they showed no tendency to shrink when touched. The bell glass was then removed, and the plant gradually recovered its irritability. Other experiments showed that anæsthetics possess the power of temporarily averting not only the irritability of vegetable protoplasm, but also the phenomenon of nutrition generally, and even those of germination. Seeds placed under the influence of ether had their germination arrested for five or six days, the process of development recommencing on the removal of the ether.

We read and study too little of our national publications. The late number of Hayden's Bulletin of the United States Surveys of the Territories, contains much of interest on the Yellowstone Park. On the slopes of Amethyst Mountain, 2,000 to 3,000 feet above the river valley, are exposed at different levels at intervals through the entire height, a series of silicified trees, many rooted in the position in which they grew, and from twenty to thirty feet in height.

Some laying down are of great size, the fragments measuring eighty-two feet in diameter, and comparable to the giant Sequoias. The series of sand stones and conglomerates in which the trees are imbedded are more than 5,000 feet thick, forming a vertical mile of fossil forests, the woody structure well preserved, but where cavities have been formed in the trunks of the rotting wood, they are lined with crystals of amethysts and quartz. Would not such information as the above, for instance, be more acceptable than the nauseous notices of suicides in the papers?

Herbaceous Plants.—We must keep some beds for color, but not carry this to excess. Spring flowers are the loveliest of all, and the art of the gardener is shown in securing a regular succession, from the early Crocus to the Chrysanthemum, (Japan's emblem), in the dying days of autumn. Mr. Bright regrets, as we do, the absence from our gardens of many plants known and admired by our grand-parents. Who can show a bed of the Christmas Rose, or Helleborus.

J. T. asks why sulphuric acid must be used to make phosphates useful as a manure? Simply that the substance may be dissolved for nature to use it. The manufacture of this cheap acid is extensive in this country, and in England, 832,000 tons are annually made. Cheap glass and cheap soap depend on the cheap production of oil of vitriol,—a sour substance to contribute to our light and cleanliness.

Flies and mosquitoes are so troublesome in the warm weather that various contrivances are resorted to, to abate the nuisance. Catching the former by a glue that their wonderfully formed feet cannot escape when once they are in it, is very effective; and now we want a mosquito cure that will be more effective than the wire and the curtain. Cannot an American inventor discover an attractive bait, and thus make a fortune?

How to make a living.—It should be one of the missions of the press to give encouragement to enterprises that are calculated to supply unsupplied wants, for there are many people who feel that they could earn a living if they knew of something that was wanted. There are wants unsupplied. Some years ago a barber seeing the scarcity of leeches, made a pond in his garden and commenced the raising of these useful creatures, with little success, however, for he did not know how. A Baltimore man undertook to

supply the market with terrapins, brought to him in thousands from every quarter. He supplied a great want and succeeded. Thus commenced the canning of oysters, now grown to immense dimensions. A Delawarean cans turkeys successfully; a New Yorker has a crawl for sea turtles, and succeeds. Soup made from green turtles and terrapins are now sold in cans.

Fossils of South Carolina.—Few persons are aware of the importance attached to the South Carolina fossils, especially those of Ashley river. These are now being worked largely, and the product exported for manures. Sea fowl in myriads have had something to do with the deposits. Besides the phosphatic nodules, the Ashley beds present a remarkable mixture of the remains of marine and terrestrial animals, consisting of bones, teeth, coprolites, shells, etc., derived from formations of various ages; of remains of vertebrates, those of fishes and cetaceans prevail, especially of teeth of sharks, and the vertebrae of whales.

It is said, no doubt with truth, that shells are now exported from Florida to Chicago for the purpose of making roads, and we know it to be a fact that the products of the slaughter-houses at Chicago are brought to the Delaware for manure. Steam and railroads have produced wonders.

Drainage.—England may in some senses thank herself for the ruin of her late crops. She has for many years drained her land to such an extent that all the rain-falls flow immediately into drains, not stopping long enough to penetrate the earth. The result is a quick filling of her little rivers and water courses; these overflow their banks immediately; hay is set afloat and ruined; grain is damaged either when cut or in the ground; sheep are drowned, and not infrequently cattle. Drainage in certain cases is very valuable; but the English in their over zeal have carried it too far, and are now obliged to ask food of their once despised cousins.

EDITORIAL NOTES.

EDITORIAL LETTER.—A few days at Saratoga cannot but impress the lover of gardening how slow the beautiful art progresses. Here where so many of the most intellectual come for rest and recreation, one would suppose that one of the most intellectual and refined of all arts, and one more intimately connected with beautiful leisure than any other, would show consid-

erable development. The little Congress Park is indeed beautiful, and there is some good work especially in vases, more immediately connected with the Congress and United States Hotels, but extremely meagre in comparison with what one might expect from the architectural character and social pretensions of these gigantic establishments. It was rather painful to notice the many beautiful houses with expensive fences having nothing to do but shut off from the public a mass of weeds! The trees planted exhibited an utter ignorance of garden material, for though there might now and then be something else besides Arbor Vitæ, Balsam Fir, Norway Spruce and Sugar Maple, these constitute the great bulk of everything planted there in the way of ornamental trees. Of course there are some few exceptions, especially on the road leading to Mount McGrigor; but this is the general character as it strikes the stranger in his wanderings through the place. This neglect of gardening is not confined to Saratoga, but is common to many other fashionable watering places; but some are waking up to a better appreciation of garden art, and just now are going far ahead of Saratoga. Even Atlantic City, sandy waste as it is by nature, has much more appreciation of garden art distributed among the people generally than is exhibited at Saratoga. There seemed to be no nurseries of any consequence near; but two excellent florists, Messrs. Ralph and Terwilliger, have greenhouse establishments of considerable size, and in the main support what little floral taste is found here.

But if art has done little, nature has not neglected Saratoga. The Hudson River, the Adirondacks, many lakes, and other beautiful natural features are not very far away; and the drives to and from these attractions are through scenery that for diversity of surface and floral attractions have few superiors. In August, when I was there, the Asters and Golden Rods of the autumn season were crowding in on the flowers of the summer season, and made pictures of loveliness I shall not soon forget. The Red Maples, Sumacs, Cinnamon Fern, and sedge grasses were already putting on their autumn brown amid the Balsams and Polygonums, which keep their green tints to a later season; while patches of the Comptonia lined the banks along the drives in immense heaps, and one need not wonder in the luxuriant form it takes here that the common people regard it as a "sweet fern."

In striking contrast with the want of garden-

ing taste about Saratoga is that of Rochester, which city I visited a few weeks later. People may say, when they see how universally the houses have tasteful gardens and an immense variety in the trees, shrubs, fruits and flowers about them, that it is only what one might expect to see in a city of nurseries. But the experience of other places shows that this is not the rule. There are many places where nurseries are as numerous in proportion to population as here, but without similar results. It must be the genuine love of art—garden art, and the spirit of intellectual refinement, or we should not have as many pretty gardens as we see. There are not many large gardens. Mr. Hiram Sibley has very neat and somewhat extensive grounds; but he is more proud of his farm, as he owns one in the West which embraces 40,000 acres, and is perhaps the largest actually under culture in the world. Like many good men Mr. S. has been the architect of his own fortune, and loves to tell of the time when he could beat his employer in making a good shoe. His success is just what many young men might achieve if they followed his plan, which was always to take a loving interest in his employment, and as far as possible, regard his employer's interest as his own. One of the attractions of Mr. Sibley's place was an English Yew tree, which though only about eight feet high is full of branches, and paced thirteen yards around. On the same grounds was a beautiful tree of the Japan Sophora, loaded with its white locust-like clusters of flowers.

Though the great beauty of garden art in Rochester may not be merely from the prevalence of nurseries, the intelligence of the nurserymen may have a great deal to do with it; for it would not be easy to find in any community of nurserymen such an assemblage of cultivated men as we find in Ellwanger, Barry, Hooker, Glen, Little, Gould, Vick, Chase, Stone, Chorlton, and perhaps a dozen others that might be named,—and I mention these particularly, only because it was my good fortune to meet with these when there. Indeed a very pleasant experience was a ride to the seed farm of James Vick, which is some half-a-dozen miles out from the heart of the city. The trial grounds, and seed blocks of huge establishments like this are always worth any one's taking a little trouble to see. Among the novelties, then apparently the especial favorites of Mr. Vick, were new styles of Phlox Drummondii. It is strange that these

varieties do not "mix," when we hear so much about cross-fertilization by insect agency. Here are beds of the different kinds of varieties—not only of Drummond Phlox, but of numberless other kinds of flowers, yet year after year they retain their characters. Now and then a mongrel, or perhaps a sport occurs,—these are pulled out and thrown away if indifferent, or saved for a new race if desirable, and this is the end of them. These grounds of Mr. Vick comprise about 60 acres,—and besides flower seeds, are used as trial grounds for plants as well; and at my visit were quite gay with numberless forms of Coleus, Geraniums, and other bedding plants.

PUBLIC SQUARES OF BOSTON.—When some time ago we noticed the filthy condition of the public squares of Philadelphia, and which give the city such an unfavorable impression in the eyes of strangers, much discussion ensued about the way in which the public money was squandered, and a great deal of talk about the putting of the right men in the right places, and so forth. There is no doubt from what any one can see that the men employed in these squares, do comparatively little work. Men who understand garden work ought to do more than these do. But when the appropriations were made the past month we noted that only about \$5000 were voted for the keeping of all the city squares; of course it is not possible that very much can be done for so small an amount, and the fact ought to go to the credit of the city commissioners. We are led to these remarks by the report of the Superintendent of Boston Public Squares now before us. From this it appears that \$44,000 were appropriated for the squares of that city. There are, we believe, about eight of these in Philadelphia, all of some considerable extent, while, exclusive of the Common and Public Garden there are thirty-eight in Boston. As however, very small sums such as \$5, \$15, \$20, etc., are given as the amount of expenses on some of them, it is probable that many of these "squares," so far as the gardening goes, are but a few feet of grass around a monument. We will take out the Common and the Public Garden from the expense fund, and this will leave about \$15,000 for the same work that Philadelphia appropriates \$5,000; so that Boston ought to be much brighter in her garden apparel than Philadelphia. This is also in Boston's favor that in Mr. William Douglass, she has an intelligent superin-

tendent; and, as we can see by this clear report, in such hands \$15,000 can be made to double the work it would do when mere "politics" fills the bill.

FOREST HILL CEMETERY.—Boston cannot boast of fine public parks, with all its advancement in horticulture; but it does have places for the burial of its dead which are equal, if not superior, to any in this or any other country, for the manner in which they are laid out, and the excellent taste displayed in arranging the permanent trees and shrubs on the grounds; also the striking manner in which the beds are planted for summer decoration. Forest Hill Cemetery is a place which should be examined by every visitor to Boston or its suburbs; its beauty during summer well repays any extra exertion which may be given to see it. Nature and the immense labor which has been expended on it by man, have made it a place to satisfy even the most æsthetical.

Mr. Farquhar, the gardener, informs me that it requires about 200,000 plants for summer decoration, 30,000 of which are geraniums of such varieties as Gen. Grant, Master Christine, Gertrude, Bijou, Perilla and Crystal Palace Gem. Of other soft-wooded plants, the following are a few of such as are most extensively used for this purpose: Ageratum Mexicanum and Imperial Dwarf, a little gem for edging beds not too much exposed to the direct rays of the sun; Alternanthera amabilis, amœna and paronychioides.—*Country Gentleman*.

INJUSTICE TO GARDENERS.—Employers are often imposed on by bad gardeners; and again there are often good gardeners who are imposed on by bad employers. Of this last class the *Gardener's Chronicle* gives the following illustration:

"A case of peculiar injustice to a gardener of my acquaintance has come to my knowledge, the publication of which may perhaps be of use as a warning to others to be careful in trusting to letters when taking new situations. The gardener is a man whom I knew as gardener for several years to a lady. He left and went to America. Not finding the climate to agree with him he returned, and has held two good places since, where he gave good satisfaction, leaving the one on account of the owner giving it up, and the other through his wife's health. I have always known him as a respectable, steady man. In March last he went into a situation in an Eastern county; when he got there he found

the gardener's cottage not a fit place to live in, the place very rough, and the employer rougher, with the additional advantage that his men were taken out for game beating, and he was expected to go also as a pheasant frightener. This, he could see, would not do, and at once gave warning, and left at the end of a month, for which he got well sworn at, and threatened with a horsewhipping, which did not come off. He had a good character when he went, now he has applied for a situation. The lady wrote to the Eastern counties' man for his character, but he refused to give it, and the consequence was he lost the place. You see, this man's bread is gone, at least for a time, and he has no remedy at law. We are no lawyers, but we think the gardener has a remedy if he choose, or is rich enough to enforce it."

AMERICAN COAL IN ENGLAND.—A correspondent of the *Garden* says:

"Anthracite is extensively used and very highly spoken of by Mr. B. S. Williams, of Holloway. He prefers it to coke, because it is more powerful, and, therefore, really more economical. This fuel is said to produce the best results when a small, bright, thin fire is kept in the furnaces, distributed fairly over the bars. By adopting this plan combustion is more complete than when the furnace is choked up with a great bulk of fuel—a mistake often made by inexperienced stokers. Of course, when making up the fires for the last time at night it is requisite to add a considerable quantity of fuel, but at all other times, and especially when the heat has declined and requires to be quickly got up, a thin, bright fire is absolutely necessary. I am convinced that bad stoking is to blame for half the failures with boilers that are attributed to other causes. The kind of boiler that finds most favor with Mr. Williams is the flued saddle, known as the gold medal boiler, which appears to be simple and powerful."

BALM OF GILEAD.—Dr. De Hass gives the following particulars as to this far-famed specific for all diseases: The name of Gilead was sometimes applied to all trans-Jordanic Palestine; properly, however, it included only the country east of the Jordan from the head of the Dead Sea to the foot of the Lake Genesareth, of which Mizpeh Gilead was the crowning point. It was here, along the Jordan and about Jericho, the balsam or balm once so highly prized, was procured from an aromatic tree, supposed still

to be found in this region, and known as Spina Christi, or tree from which the Saviour's crown of thorns was woven. This most precious gum was obtained by making an incision in the bark of the tree; it also oozed from the leaves, and sometimes hung in drops like honey from the branches. The tree which originally was found in Palestine, was transplanted to Egypt by Cleopatra, to whom the groves near Jericho were presented by Mark Antony. The shrub was afterwards taken to Arabia and grown in the neighborhood of Mecca, whence the balsam is now exported to Europe and America, not as balm from Gilead, but balsam of Mecca. The gardens around Heliopolis and the "Fountain of the Sun," in Egypt, no longer produce this rare plant, and it has long since ceased to be an article of export from the ancient Gilead.—*Journal of Chemistry*.

MOSAICULTURE.—M. Chretien (writes our Lyons contemporary) has this year given us in the *Parc de la Tete d'Or*, some pretty examples of what he terms "mosaiculture," in the shape of beds containing mottoes and devices set out with colored foliage plants. Our Scottish neighbors seem to have carried the idea farther, with an eye to business as well as ornament. On a hillside not far from Glasgow may be read the words *Glasgow News* in gigantic letters, each forty feet long and six feet broad, formed of colored foliage plants. The inscription occupies a length of one hundred yards, and covers a space just 1,450 times the size of the journal it advertises.—*Garden*.

FIFTY YEARS AN EDITOR.—The *Germantown Telegraph* has just passed its fiftieth year under the sole and continued editorship of the well-known P. R. Freas. The most remarkable feature in this half century of work is that the paper is to-day as popular as it was at the start, and is considered by the knowing ones of the city to be an extremely valuable piece of newspaper property. The *Germantown Telegraph* is a living proof of the falsity of some beliefs, that to make a paper successful, humbug and sensationalism must be indulged in. No paper has been more free from these vices. No paper can boast of a more honorable career. For this example it is meet that not only his friends should congratulate the Editor on his long lease of life,—but every friend of a pure and independent press should feel to be his debtor.

A LONG TERM OF SERVICE.—One of the pleasantest features of gardening in England is the kind personal relations which often grow between employer and employed. The famous gardens and grounds of St. Clare, in the Isle of Wight, have been for over forty years under the management of Mr. Edward Meehan. He is now over eighty years of age, but still comparatively hale and hearty. Colonel Francis Vernon Harcourt has recently retired him from the position, but on full salary, leaving him also the residence on the grounds in which he has lived so many years. In addition to this generous act, he has gracefully appointed his youngest son, and brother of the Editor of the *GARDENER'S MONTHLY*, Mr. Charles Meehan, to succeed his father in the management of the estate.

Col. Francis Vernon Harcourt, proprietor of St. Clare, is nephew of Admiral Vernon, the famous President of the Royal Agricultural Society of England, who was the friend of the celebrated Cobbett in his efforts to introduce Indian corn culture into England, and which was indeed a partial success in the Isle of Wight. He is also son-in-law of the late Earl of Liverpool, and proprietor of the Estates of Buxted Park, which embrace over 15,000 acres, and which are managed in such a productive and yet generous way, that there is no agitation for a "Landlord and Tenant Bill," in regard to them.

DR. A. C. WILLIAMS.—A postal card with the above signature, addressed to the "Editor of the *GARDENER'S MONTHLY*" would have received immediate attention if the post office and full address had been given. People often complain of discourtesy, or blame the post office, when it is their own fault.

ILLINOIS STATE HORTICULTURAL SOCIETY, 1878.—From O. B. Galusha, Secretary. One of the most admirable features of this beautifully bound volume, is the complete index,—not merely a "table of contents" or list of titles of the chapters, which is all most of the "proceedings of societies" give.

THE CAMBRIDGE BOTANIC GARDEN.—Prof. C. S. Sargent's report of the garden for 1879 is before us. It is the last report he will make, and it must be gratifying to him that he leaves the position of Director with the garden in such a prosperous condition. There are now 5,901 species growing there, against 2000 species when he took possession of the office in 1872. It is

pleasant to note how the public aided this garden. During the seven years of Prof. Sargent's Directorship, \$13,855 have been contributed by friends to its assistance.

THE OHIO JOURNAL OF FLORICULTURE. By L. L. Sanborn, Alliance, Ohio.—This is a new addition to a very useful class of floral works of which we have now some half dozen, and which convey a great deal of very useful information in a cheap form.

GREENHOUSE CATALOGUE OF ROBERT BUIST, SR.—No one can have any idea of the immense number of excellent catalogues which come to our table with "please notice" attached to them. It would take one-fourth our space in the busy months to do justice to them all, and invidious to give one firm an advantage by a notice over the others. But we are quite sure no one will be envious that we notice the work of this veteran in the business, who far beyond his "three score and ten" still shows as wonderful enterprise in introducing and disseminating "new plants," as he did over half a century ago. That he will yet long continue to do so, will be the wish of a large circle of business friends.

PRACTICAL TAXIDERMY, for sportsmen and home decoration, by J. H. Batty, New York, Orange Judd & Co.—This is not a large book, but it is pleasantly written, profusely illustrated and neatly bound, and is an excellent little book for boys, or those who may be called to a life in the woods, either for a long or short period. Whether one may want to camp out for months, or merely take a short run to the woods for ferns or autumn leaves, the hints and directions are equally explicit. We believe there are few libraries where those who make use of them have any love for wild nature, but will find a welcome addition in this little book.

OBITUARY.—Died, at Bloomsdale, near Bristol, on the anniversary of Washington's birthday, Feb. 22d, 1880, David Landreth, one of nature's noblemen, and a gentleman in all that makes society of interest. Inheriting a good name from an excellent and industrious father, he was one of those Americans who delighted in progress. His name is a household word "from India to Japan." In his efficient labors to introduce the best vegetables he had no rival. Generous to all who would advance horticulture, he combined so many qualities that all who had the great privilege of approaching him, were charmed by his dignity, suavity,

and simplicity of character. From a few acres he developed a business of many thousands, selecting climates to suit each product. But we do not dwell especially or only on his successes, which were world-wide; rather would we draw a picture of his mild government of great enterprises for the good of his country, which have benefited thousands. We are happy to say that his influence, co-extensive with the onward in our American history, will not stop by reason of his lamented demise; he has left sons, who in all respects have benefited by the wise counsels of their excellent father. When the best person was wanted to superintend and manage the great interests of the agricultural department of the National Exhibition, the office sought naturally his son, Burnet.

At the time of his decease, and for some previous years, his firm, under his directions, was engaged in a most interesting enterprise to which we desire to give prominence. It is generally lamented that useful trees and even forests are disappearing from the surface of American lands, till danger exists, that like Spain, our country will be so far denuded as materially to deface it, and destroy its future abundance. Mr. Landreth, with foreseeing knowledge, observed this prospect increase; but it was of no use to argue the point with lumbermen, who take no thought of the future. He reasoned thus: Nothing will stop this desecration but by showing that to plant is to make money, if not immediately, in so near a future that the children of the living may greatly profit by the labors of the fathers. With this ascertained, a percentage of the population will be induced by the pleasure that comes to the planter, and by the prospect of reaping much of what he has sown, to plant extensively. To do this successfully, easy access and transportation are requisites. With patriotic intentions, no sooner was this thought-out thoroughly than large tracts of land in Virginia, on its navigable rivers, were purchased at surprisingly low prices, and the work was begun some years ago. Nuts and seeds were purchased in vast quantities; the ground, where worn out, was resuscitated by fish and other manures found ready at hand. A forester was selected, and Virginia is now growing wood for useful purposes on a scale little known to many inhabitants of the State. Formerly—we give it as one instance—Walnut wood was found in sufficient supply in most of the Northern States, but fashion soon demanded more. Next, the banks of the Ohio were

exhausted, till now the coveted wood is transported to the East from beyond the Mississippi at great cost, for houses and many other uses. So with most of the useful and ornamental woods. The ties of railroad foundations soon exhaust a State of particular woods; house and car builders and a thousand others are daily hacking away our beautiful surroundings. It is stated that the Pine tree, *Pinus strobus*, is already barely found in sufficiently accessible quantity to feed even the maw of the lucifer match maker; furniture requires a never-ceasing supply. Mr. Landreth's foresight will assist, only partially, it is true, to remedy all this; but his example will induce increased planting. For this he deserves and will receive the thanks of his countrymen. But his example is valuable in the fact that his large means were used without ostentation. He valued the best, and lived on the product of his knowledge of what all should seek—the wholesome and good. His hospitable table, to which he welcomed the governing minds of his country, was an example of refinement and elegance.

It may truly be said that the world is better for Mr. Landreth's life. Sincerely his departure is regretted. Long will his example be found useful and worthy of following. "*Requiescat in pace.*"

ALEXANDER BURNETT.—Among the deaths of the month we regret to record that of Mr. Alex. Burnett, the well-known florist of Reading, Pa., which occurred on the second of March, of cancer in the throat, in his 65th year. Mr. B. was for many years head gardener to H. Pratt McKean, Esq., one of the best situations about Philadelphia. At Reading he had charge of the Chas. Evan's Cemetery, as well as being in the Florist business. His thorough knowledge of Horticulture, and courteous manners made him well known and influential in horticultural affairs about Reading, and he will be greatly missed in that community.

JACOB STAUFFER.—Our well known and highly esteemed correspondent, Jacob Stauffer, of Lancaster, Pa., died on the 22d of March, in his 72d year. As artist, botanist, engraver, photographer, printer, soldier, civil public servant, editor,—his self-made career has been as remarkable as it has been an honorable one; and one which has exercised a wonderful influence on the young in the community in which he lived. Few have passed away of late who will be more lovingly remembered, even in remote corners of the world than Jacob Stauffer.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There are few things more annoying to the good gardener than fall grass in the lawn. Our summer heats are rather hard on the kinds of grass usually employed for lawns, while the hot weather is just what the fall grass likes. Thus it is in a favorable situation to attack just as its enemy is the weakest, and how it conquers everybody knows. In itself it might be tolerated in spite of its dull and rather coarse look, if it were not that after crowding out everything else, it is very dilatory in its appearance in spring. Large brown spots remain till nearly a month after the lawn ought to be lovely, and makes the ugliness of the grass plot almost unbearable. We read now and then of a cure for fall grass; but all who have had to grapple with it practically know that nothing so far has been successful. A few years ago a lawn under our observation was sown with English rye grass. It made a beautiful lawn, but the severe winter of three or four years ago, destroyed it. A good deal of natural grass in the mean time had appeared with the other, chiefly blue grass, and the owner decided to let the lawn take its chance with the natural herbage. With the seeds of rye grass here and there came up plants of the Sheep Fescue—*Festuca ovina*. These have entered the lists against the fall grass, and it is interesting to

note that it crowds it out little by little whenever it has the chance. We feel almost sure from the observations of last year, that if those who are troubled with fall grass will sow thickly with Sheep Fescue, they will find no mean friend in the effort to get rid of it.

In regard to general lawn management, mow lawns very early the first mowing, or at every subsequent mowing the lawn will look brown. A thin sprinkling of salt is good for the lawn, just enough salt to see the grains on the surface, about a quarter of an inch apart. An overdose will destroy the grass. Frequent rolling is one of the best ways to get a good close sod. When coarse weeds get in the lawn, hand weeding is the best remedy.

In planting trees rather late in the season, it is often a practice to pour a little lake of water about the roots. We have noted that the losses after this practice are often greater than under any other. Taking up such dead trees, we see why it is. The mud presses down on the upper surface of the roots, but is taken away from beneath them. Indeed the whole under surface beneath the level of the roots is a sort of Mammoth Cave. In short just one-half the roots are not in contact with the earth, and may as well not be on the plant at all. Indeed as we have often said, if the earth is pounded in about the roots, firm as a rock, shovel by shovel full as

it is put in, it is the perfection of planting. If the tree is likely to wilt much, a little pounding will be better than water. It is the neglect of this pounding in of the new earth about roots, that makes so many look after large balls of earth, in which the roots are already tightly packed. A friend recently said to us, "I expect to have splendid success with my large trees. I moved about eight tons of earth with each one." The effort to secure the earth, left the best young feeding roots in the old spot. We would not risk much on the success of these trees. If the ground gets dry during the season around a newly planted tree, a pounding with a heavy rammer, will often be better than a bucket of water.

Hedges that are growing very rank should receive their first pruning about the time the young growth is commencing to harden. Another pruning in autumn will be necessary. Prune so that there will be some sort of a slope from bottom to top. This will enable the sunlight to get to the leaves at the bottom as well as at the top, which is important to a good hedge. Many young hedges are ruined by being pruned too young. This is especially true of Honey Locust, Osage Orange and other deciduous kinds. It is best to let these grow until the stems are two inches thick at the ground, then saw them to within a half inch of the ground. They will then push up a perfect wilderness of young sprouts, which can be pruned into shape the same season. On this plan the young hedge plants are often two years wholly untouched. This plan was first promulgated by the GARDENER'S MONTHLY, and the more we see of its workings, the more we are satisfied that one can get a better hedge in one-half the time and at one-half the cost by the GARDENER'S MONTHLY mode than by any other we know of.

COMMUNICATIONS.

THE HOLLYHOCK.

BY M. W. CALDWELL, QUERY'S TURN-OUT, N. C.

I notice in March number of the GARDENER'S MONTHLY, an inquiry about the old-fashioned Hollyhock, if there is any place where they do flourish as in days of yore. In these parts they do. I have seen them for the last forty years, and if any change has taken place in that time, I think they are perfect. Some ten feet high with two hundred big, single, open-mouthed flowers, from 4 to 5 inches in diameter, of

all colors, plain and notched edges, etc. There are a dozen kinds or more growing in our yard from year to year without any attention whatever. If any of the readers of the GARDENER'S MONTHLY wish seeds, I will collect some this summer for distribution of any color, from nearly black to pure white; as there are plenty of plants that have come up of their own seeding. When I first remember, my grandmother's yard was a wilderness of hollyhocks of various kinds.

THE NOOTKA SOUND CYPRESS.

BY H. W. SARGENT, WODENETHE, FISHKILL-ON-HUDSON.

In reply to a question as to the size and hardiness of this tree, in your March issue, I have two fine specimens perfectly hardy and never in the slightest degree injured by the worst weather. No. 1, 21 feet high, 18 feet in circumference; No. 2, 14 feet high, 22 feet in circumference, about 7½ feet in diameter in its widest part.

IMPROVEMENTS.

BY E. P. POWELL.

The proper handling of shade trees is a matter of special importance to the public. I have in mind a long row of superb maples flanking a village street, and matched by equally fine trees across the way. For a mile, this street, running in a straight line, has been one of the loveliest of drives, increasing in its attractions year by year. The trees nearly interlocked overhead, and gave a summer day such relief as horse and foot could thoroughly appreciate.

Now for improvements No. 1. It occurs to our citizen along this route that the trees are too close together in front of his house. He cuts out every other one and burns them. The remaining trees do not look shapely because they had grown interlocked so long as to be somewhat denuded of limbs on the sides next each other.

No. 2. A man of restless activity buys a large place with one hundred front rods. He proceeds to trim up every maple to a height of fifteen feet from the ground. Not the least shade is now furnished along these hundred rods by trees, many of which look like inverted broom-sticks with some broom at the top. Not realizing that leaves are in part to protect the limbs and trunk from the scorching heat of summer, and to prevent the ground becoming exceedingly dry, he has begun the rapid decay of all his trees. Beauty and utility

are gone, and vitality seriously weakened. There ought to be some law to protect the public from the effect of improvements that rob us of shade as well as drinking fountains. The one is quite as essential to comfort as the other.

No. 3. Another new comer has taken possession of a large homestead where unusual attention had been given to choice evergreens. He has trimmed up the Norways to eight feet, in order to admit of ploughing. Though in front of his house, they are sheared into uniform sugar loaves. Eleven green sugar loaves stand on their bottoms to delight his eye with their charming symmetry.

No. 4. This improvement takes in a river front. That is, a small river crosses the street, and divides the property. The banks of this stream were famously beautiful for superb willows that hung over and interlocked their branches as far down as the eye could discover. By some law of æsthetics quite recondite, our neighbor has been impelled to saw off all of these at a height of twenty feet, and allow them to grow up into enormous round tufts. This improvement seems to come into the class of experiments made for a love of change.

These improvements indicate four classes of mischief makers. We all get to have a just share in our neighbor's horticultural delights, and he has no right to first give us a pleasure and then take it away. As I suggested above, a tree planted in the street, is like a drinking fountain presented to the public; it is a gift, and no longer wholly private property.

"One harvest from your field
Homeward bring your oxen strong;
But another crop your acres yield
Which I gather in a song."

ESSAY ON HORTICULTURAL PROGRESS.

BY PETER HENDERSON.

Read before the New York Horticultural Society, March 9, 1880.

The first botanic garden of which we can obtain record was established in Philadelphia by John Bartram in 1728, which gave an impetus to horticultural taste in that city that enabled it for many years, probably up to 1850, to claim as possessing the finest collections of plants both private and commercial, of any city in the Union. New York started later, although we find that as early as 1750, places were advertised for sale on Long Island, and among the inducements offered to purchasers, it was mentioned that they had flower gardens attached; and in 1756 others

were offered as having greenhouses filled with tropical plants; and to show indisputably that there was some general taste for horticulture, at that early period, we find that in 1751 a pottery at Whitestone, L. I., is under way and advertises "that any person desirous may be supplied with urns and flower pots to adorn gardens." In 1767, William Prince, of Flushing, offered a great variety of fruit trees, such as Pear, Apple, Peach and Plum, packed so they can be safely sent to Europe! And later in 1774 in the *New York Mercury* of that year, this enterprising horticulturist has added ornamental trees to his grounds, and offers the magnolias of the Carolinas, and other rare trees and shrubs. Mr. Prince was an enthusiast in all departments of horticulture, and by the beginning of the present century, had added to his nursery of fruit and ornamental trees, a greenhouse department, which contained a very full collection for that time; and in a Short Treatise on Horticulture which he published in 1828, he describes 37 varieties of Camellias, 13 species of Amaryllis, 90 varieties of Dahlias, and 67 species and varieties of Pelargoniums, as being a portion of his collection at that time. The Prince Nursery at Flushing was then known as the Linnæan Botanic Garden, and had by the wonderful energy of its proprietor a rare and interesting collection of trees and plants, some of which were eventually lost to cultivation until again introduced here from Japan by Mr. Thomas Hogg, notably among which was the Japanese Persimmon, now creating considerable attention as a new fruit for our Southern States. Another botanist, Dr. David Hosack, started the Elgin Botanic Garden in this city in 1801, and in his catalogue for 1811, appear nearly 3000 species of plants, of which 500 were greenhouse exotics. The Curator of the Elgin Botanic Garden, at that time was a Mr. Dennison, who began business as a florist in this city in 1814, at a point near where the Fifth Avenue Hotel now stands; and which at his death in 1822, was leased to Thomas Hogg, father of the present Thomas Hogg, to whom the world is so much indebted for his valuable introductions of Japan plants. A Mr. William Wilson, a contemporary of Thomas Hogg, was the author of a book on Kitchen Gardening, and was also the originator of the first Horticultural Society in New York, in 1818. Another prominent horticulturist of that day was Mr. Thomas Bridgeman, who kept a seed store at 17th street and Broadway, which is still managed by his descendants.

Mr. Bridgeman was the author of the Gardener's Assistant, a work having a large sale, and to which hundreds of European Gardeners on coming here, and unused to the American climate and plants, are much indebted. By 1840 commercial horticulture had come to be liberally patronized, and nurseries, greenhouses, and market gardens, of considerable extent had been established in Long Island, New Jersey, and New York Island, so that the markets were fairly supplied with fruits, flowers and vegetables; but meagre indeed to what they are to-day. The advancement in floriculture has been much the greatest. In those days the gorgeous designs formed by cut flowers, now such a feature in all our large cities, had no existence, and the wonderful plants of the tropics now seen in such profusion and variety, embellishing public or private entertainments were almost unknown. In nothing, perhaps, has horticulture advanced so much as in the beautiful designs that cut flowers are made to form, and which in New York to-day is perhaps unsurpassed by any city in the world. In 1844 I was an assistant in one of the then largest floral establishments in New York City. If a wreath was to be made, its base was usually a piece of willow or a barrel hoop; if a cross, two pieces of lath formed the groundwork, and the work when done was usually such as reflected but little credit on the artist. Bouquets were then about the only style of design in cut flowers; these were usually made flat or one sided, the ground work being arbor vitæ, through which the stems of the flowers were drawn. Bouquets made round were rare, for floral art had yet developed but few fitted to cope with such an undertaking, and the few who did, made poor work indeed. Our sales of flowers at that establishment for New Year's Day, in 1844, hardly amounted to \$200, and probably for the whole city of New York, it did not exceed \$1000. Now, it would probably be no exaggeration to say that New York pays \$50,000 for its flowers on that day, and that the amount paid yearly for these perishable commodities run into the millions.

(To be continued.)

HOLLYWOOD PARK.

BY WILLIAM SUTHERLAND, PHILADELPHIA, PA.

Long Branch, N. J., one of the finest summer resorts on the American coast, is not only noted for its bathing facilities, beautiful drives, villa residences and hotel accommodations, of which the West End, Ocean House, and Howland

House, are among the largest summer hotels in this country, but it has also become famous as the residence of John Hoey, Esq., one of the most liberal patrons of horticulture in the United States; and for the sake of the fine old art we would there were a few more like him.

Hollywood Park, the residence of Mr. John Hoey, is situated about one mile from the Long Branch depot, and is, with a few restrictions, open to the public at all seasons; and every lover of the beautiful misses a great treat who does not visit it. Long before you arrive on the grounds, you can see the rather conspicuous fences, painted red and yellow, which is a feature of the place and quite ornamental.

On entering the grounds I was met by the gardener, Mr. James McKay, who, when I explained my visit and tendered him my introduction by the editor of the GARDENER'S MONTHLY, showed me every attention and courtesy that was possible. The sight amazed me and is almost beyond description. I feel that my feeble efforts are quite inadequate to do justice to the beauties of the place or to the skill of the gardener.

The grounds are beautifully laid out in walks and drives; the lawns are embellished by a great many bronze statues with granite bases. But the flower beds are the glory of the outside, and require hundreds of thousands of plants to fill them, and sixty men or more to take care of them. One very large oval bed of *Alternanthera*, which is clipped every three days, contained the Shaksperian quotation: "This is an art which does mend nature but the art itself is nature." The letters were formed of *Semperviviums*, which gave it a very pretty and novel effect; the words were around the base of a statue and the whole flower bed was as near perfect as human hands could make it, and was alone well worth a journey to see.

Mr. McKay next called my attention to two immense ribbon beds, one on each side of the walk, and perhaps some eight to ten hundred feet long, filled in eleven strips with, 1st, *Stevia variegata*; 2d, *Geranium Mountain of Snow*; 3d, *Achyranthus Gilsonii*; 4th, *Geranium Mountain of Snow*; 5th, *Achyranthus Lindenii*; 6th, *Coleus El Dorado*; 7th, *Achyranthus Gilsonii*; 8th, *Stevia variegata*; 9th, *Coleus Verschaffeltii*; 10th, *Stevia variegata*; 11th, *Coleus Negro*. The yellow *Coleus El Dorado* forming the centre strip, gave it a gorgeous appearance. Mr. McKay uses the variegated *Stevia* very

extensively in all the flower beds requiring a light colored leaf, and prefers it to the *Centaurea* or *Dusty Miller*.

There were also several beds of *Geraniums*; one filled with *Happy Thought* was very pretty; and one filled with a bronze or golden kind, called *Crystal Palace Gem*, looked very attractive; but for masses of color and free flowering qualities, Mr. McKay finds none to beat *geranium General Grant*, of which there were some very extensive beds. The *Canna* with *Musa Ensete* in the middle, planted out in masses, gave the gardens quite a tropical appearance. While the *Dahlia* and *Gladiolus* beds were very conspicuous. Near the mansion was a row of fifty real porcelain vases, worth perhaps one hundred dollars each, which were very tastefully filled, and added vastly to the attractions of the place. Near the vases was a collection of some three thousand *Agave* plants, of some two hundred varieties, some of which were expected to flower very soon.

Hollywood contains in all some two hundred acres, one hundred of which are in the flower gardens and separated from the other parts by a beautiful Norway spruce hedge, which is clipped regularly twice a year—once in June and again in August.

Some idea of the extent of the flower beds may be gained when it is known that it takes between two and three millions of plants to fill them; these, with a very few exceptions, are all grown on the place, requiring greenhouses especially for propagation.

The conservatories consist of nine ranges, twenty-three greenhouses in all; five of which are three hundred feet long. All the large houses are built of iron, and heated with Hitching's hot water apparatus, and all have plaster or cement walks which give the houses a very neat and clean appearance. The first house I visited was in the shape of an immense oval building, and filled on all sides with *Caladiums* grown in very large pans; these of themselves were a sight to behold, consisting of many hundred specimens in about thirty five varieties.

Another house was filled with *Dracenas*, *Marantas*, *Alocasias* and *Begonias*, interspersed with some magnificent specimens of *Sphero-gyne latifolia*, which lent a charm to the other surroundings. Mr. McKay allows the *Marantas* a season of rest and lets the plants become partially dry, keeping them in that state until they

show signs of growth. Treated in this manner the various leaf markings become more intense, and last much longer on the plants.

(To be continued.)

EDITORIAL NOTES.

BAD EFFECTS OF THE MILD WINTER.—It is hard to please poor human nature. Now while so many are thankful that the winter has been so mild, there are others who have discovered that the potatoes left in the ground last fall when the crop was dug, have not been killed as usual, and a fearful crop of potato "weeds" is anticipated.

ROSE CULTURE IN AMERICA.—Dingee & Conard of West Grove, Chester County, are said to be the most extensive cultivators of roses in the country. They have forty-six greenhouses, the smallest of which is not less than 100 feet in length, all devoted to the propagation and cultivation of roses. These gentlemen received last month fifty large dry-goods boxes, filled with pamphlets and catalogues for distribution. The postage on these catalogues alone last year cost this firm \$2,700.

PRUNING INJURED TREES.—The winter in Russia, as in other parts of Europe has been one of unusual severity. Dr. A. Philibert, of Moscow, writing to Jean Sisley, of Lyons, France, speaks of the probable injury to fruit trees, and of numbers that were cut down under the impression that they were frost-killed in the severe winter of 1860, the trunks of which afterwards grew,—and therefore says he, "it will be imprudent to prune anyhow, but wait first to see if they are really dead. This seems strange advice to those who have American experience; we know that trees die in winter from excessive evaporation, and that moisture dries faster from a dead or dying branch than from a sound one. The sooner a frost-injured branch is cut away the better for the parts that are left. No doubt the trees that lived in 1860 lived because of the pruning they received.

MEMORIAL TREES.—These pleasant mementoes were not uncommon with distinguished people of former times. In the garden of W. W. Seaton at Washington is an apple tree planted by Daniel Webster, a pear tree by John C. Calhoun, and a cherry tree by Mr. Benton. It is said these trees show signs of decay.

GERMANTOWN is famous for its neat gardens, nurseries and florists' establishments; its woolen, cotton, carriage, and carpet establishments; its newspapers, and for its Revolutionary history,—and strangers should remember when coming to the place for any special purpose, that it is nine miles long! Many a person has had half a day's hunt, because he did not get his exact directions before leaving home.

TOM THUMB ARBOR VITÆ.—It may be with-in the recollection of many of our readers, that although it was well-known that the Tom Thumb Arbor vitæ was raised from the common arbor vitæ, and that it is common for this and many allied plants to carry on their "free-leaved" or primitive condition for many years, or even for life, yet M. Carriere of Paris insisted that it must be something else, and re-named it "Retinospora Ellwangeriana." According to the *Gardener's Chronicle* he has at length discovered that "Retinospora Ellwangeriana is a form of Thuja." He seems to have started to doubt on "Retinospora ericoides," which he now asserts "is a Biota,"—that is, a form of Chinese arbor vitæ. It would not hurt M. Carriere to read American publications.

HOW TO PROPAGATE MISTLETOE.—A correspondent of *Gardening Illustrated*, says: "At this season of the year, when so many possess Mistletoe berries, it may interest some to know how to obtain plants from these berries. Select two or three of the finest of them, and when the wood of any apple tree, on which it may be desired Mistletoe should grow, is quite dry, take one of the berries between the finger and thumb, and rub it gently on the part of the tree where the Mistletoe is wanted to grow. When the berry breaks, the gummy juice inside causes the seeds to adhere to the bark. In a short time two small prongs will be emitted from the centre of the berry, and these will turn round and root and grow on the branch to which the berry is attached. This is a simple way of propagating the Mistletoe which any one may try with success."

THE JAPAN SNOWBALL.—Not only in America have the merits of this beautiful shrub been overlooked; Shirley Hibberd notes the same of Europe, and says: "If we have to say again and again that this or that is not sufficiently appreciated, it is not so much our fault as our misfortune. How true it is of this Viburnum; the noblest of all the hardy flowering shrubs of its class, and a quite surprising subject for a wall,

while it is also a grand plant to grow in a pot or tub for the cool conservatory, where Viburnum tinus would be at home with it in the climate of London. The common Guelder Rose, Viburnum opulus, is a fine thing that one meets with in every shrubbery, and also as a wilding in many a woodland glen. The wayfaring tree, V. lantana, is another of the family that we meet with as a wilding in woodland districts, but it is a limestone plant and not often seen in company with V. opulus. But none of the tribe can equal V. plicatum in beauty, whether of leaf or flower, and the matter for surprise is that we may look for it in a thousand gardens ere obtaining a glimpse of its glorious globular clusters of snow-white flowers."

NEW OR RARE PLANTS.

ROSE JULES CHRETIEN.—Judging by the colored lithograph just issued by Mr. Saul, we should think that this new crimson hybrid perpetual Rose is a very beautiful kind. A singular peculiarity is that the thorns are all arranged in two opposite lines on the sides of the stem touching each other just like sharks' teeth. It must have a strange appearance on the living plant.

EARLY-FLOWERING CHRYSANTHEMUMS.—For out door culture the Chrysanthemum flowers rather late. Efforts have been made in France and Belgium to obtain a race of early-flowering kinds. The effort has been so successful that a class which will begin to bloom in July in England has been introduced. The following are said to be the best in this class:

Jardin des Plantes, (white).—A very dwarf, free-branching and floriferous variety, producing flowers quite two inches across; white with slightly yellow centre, very double; lasts a considerable period in flower; a first-class variety.

Jardin des Plantes (yellow).—This is rather a taller-growing variety than the preceding; free flowering, with bright golden yellow color; a very suitable companion to the last.

Indicum nanum.—A similar variety to the first, somewhat more of a pure white in its first stage, but passing as the flowers acquire age to purple; very dwarf habit and free flowering.

Andromeda.—A very free variety, producing very large flowers of a bright yellow color.

Cassy.—Rather tall growing, and bearing large light rose-colored flowers of great beauty.

SCRAPS AND QUERIES.

A BEAUTIFUL STRIPED ROSE.—E. A. B., Northampton, Mass., says: "I send you by mail to-day, two rosebuds from the same plant, (Louis Phillip) growing in my rose border. I have some half dozen of the variegated ones. Is it worth propagating, or is it a common thing for the Louis Philip to sport in this way?"

[We believe a striped Louis Philip is wholly new. The white lines are very pure, and the effect beautiful.—ED. G. M.]

THE HOLLYHOCK IN CONNECTICUT.—Besides the note in another column, we have the following from Mr. T. S. Gold of West Cornwall. "I notice an inquiry in the *GARDENER'S MONTHLY*, pp. 70, 'Is there any part of the country where the old-fashioned hollyhock still thrives?' Now the old-fashioned single and semi-double, pink and other shades of red, has got loose in my garden, in the border of my asparagus bed, and thrives as well as it ever did, as attested by perhaps 100 stalks six to ten feet high all through last autumn. We never thought it could be sick."

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Plants that have been in windows or greenhouses must now be set out to get their summer airing. Usually they are simply set out in the pots in which they have been growing. If there are a large number they are set on the ground in long narrow beds, and often plunged in sand or coal ashes so as to keep the roots moist and cool and save watering. These summer bedded pot plants are often arranged like little flower gardens, in circles, squares and other forms, and add very much to garden interest. It is usual to put these plants out under some shade, either that of a large tree, an arbor, or under slats made on purpose for them. Very often however these are too shady for some things. Azaleas, for instance do not flower well if kept all summer in too much shade. It is best, if possible to divide the plants into three sets,—those which love shade such as most Ferns; those which do well in partial shade, as Camellias;

and those which prefer the full sun as Palms and many tropical plants.

It is also well to make the beds of pot plants near where water is easily obtained, so as to have an easy supply for watering and syringing. This last is an important point, as the red spider often makes fearful work on a warm summer's day. Orchids in baskets for the most part do very well hung out of doors during the summer; but these should be suspended from the branches of trees, or from some half shaded spot.

Though most plants will be kept in pots, some that will lift well with small balls in autumn may be planted in the open ground. This is particularly good advice when the plants look a little sickly from over-watering or other cause. They may be pruned a little when served in this way.

Many things get too large for windows, and conservatories before the season's growth is over,—this should be foreseen at this season of the year, and such possible offenders severely pruned.

COMMUNICATIONS.

THE GERMAN METHOD OF PRESERVING FLOWERS.

BY T. T. S., ROCHESTER, N. Y.

I observe that a lady correspondent in the March number complains she cannot succeed in making things bloom with the German method of submersion in chemically prepared water. The ladies of my household have no trouble in producing bloom on apple and other free-blooming things by the following very simple plan. They place the apple twigs or what ever they desire to bloom in clear glass vases, and place the vases where they will get a great deal of sunshine, as in a bay window. Apple twigs cut about March 1st, are just about ready to burst into bloom at this date, (March 18th). The vases are kept filled with rain water only. I have paid no particular attention to the matter, but think the bright sunshine is quite an important part of the experiment, as they failed last year when they attempted to bloom apple, and in a dark but warmer room.

FORCING LILIUM CANDIDUM.

BY FLETCHER WILLIAMS, NEWARK, N. Y.

In answer to the enquiry of S. F. T., in March number of GARDENER'S MONTHLY. *Lilium candidum* treated as a greenhouse plant is an object of great beauty. It blooms early and naturally, and with less care than most greenhouse plants. But to grow it successfully it is necessary to pot it as soon as the summer blooming is over, and the foliage begins to turn yellow, then give it a pot of generous size with any good fresh soil. It makes a fall growth of radical leaves like a strawberry plant, and to grow it well, it only requires to be potted early, as I have said, so that this fall growth is perfected while in the pot. Perhaps it is not necessary to add that it is this fall growth that prepares roots and perfects the flower buds for the next season. Its fragrance, purity of color, and stateliness of aspect, make it one of the most desirable plants for the greenhouse or window gardening.

ORCHIDS AT BALTIMORE.

BY A LOVER OF ORCHIDS.

Having half a day at my disposal while at Baltimore the past week, I availed myself of the opportunity of visiting the orchid-houses of Capt. Chas. H. Snow, at Edgewood. They are

not large, and are heated by means of small copper boilers; one of sufficient capacity for each house,—the least expensive mode of heating with hot water I had ever seen. One of the houses is partially below the surface of the ground, the other upon a side-hill, adding thereby to their warmth in Winter, and coolness in Summer, and at all times increasing the humidity of the atmosphere, which, with proper ventilation is such a necessary requisite to successful orchid culture. I had not before seen other than the most expensive houses constructed for growing amateur collections of these beautiful plants, and I was therefore surprised at the great success Capt. Snow has attained in these cheaper structures. They were full to overflowing with a grand display of these floral gems. *Cattleyas*, *Dendrobiums*, *Laelias*, *Lycastes*, *Odontoglossums*, etc., a sight one can seldom witness in this country. Capt. S. has made the cultivation of Orchids a study, not merely from books, but from the actual care of the plants. He can give you the name of each particular variety, its former habitat and mode of growth, and, what is wonderful to one inexperienced, can tell them all by their foliage, often almost identical. He knows the treatment each requires, and when it should rest, and when he started into growth again, and when it will bloom. He has but few East Indian Orchids in his collection, having devoted his attention chiefly to those from this continent especially South America, but had a fine display of *Dendrobiums Pierardii*, and others in bloom. I also saw a small plant of *Odontoglossum crispum*, newly imported, opening for the first time, exceedingly delicate and beautiful. *Cattleya Aclandiae*, so rich and so difficult to grow, and so shy of bloom, not to mention a row of *Lycaste Skinneri* which charmed the beholder more than all the others, and had been scarcely a year in his possession.

From his articles in the GARDENER'S MONTHLY, I was aware he must have a great love for practical floriculture, but when I saw what results can be attained by a little time, care, and patience, and at very moderate expense, I was convinced that Orchid cultivation in the United States can be made as successful as in England, and at far less cost; and I believe the time is not far distant when a fine Orchid in bloom will not be the rare sight it now is, or a small collection of these curious plants the exclusive property of the wealthy few.

THE IMANDEVILLA SUAVEOLENS.

BY MR. C. E. PARNELL,

GARDENER TO W. D. F. MANICE, Esq., QUEENS, L. I., N. Y.

In the GARDENER'S MONTHLY for February 1880, page 44, Mrs. S. E. P. inquires as to the best method of cultivating and flowering *Mandevilla suaveolens*. It should be remembered that in its native country the *Mandevilla* attains a growth of over forty feet in length, and therefore it cannot be grown and flowered in pots to any great perfection. Although I do not cultivate the *Mandevilla* as a pot plant now, I have grown and flowered it very well, and my method of treating it as a pot plant may be of benefit to Mrs. S. E. P. About the middle of April I turn the plant out of its pot, and remove the greater part of the soil, and also cut back some of the roots, if there happens to be many of them. I then repot it in the same pot, using ordinary potting soil with a good portion of well rotted stable manure, and then place it in a warm light place, and water carefully until it commences to grow. About the 10th of May I plunge it out of doors to a trellis, and at the same time I form a basin around the pot so that it can be watered when necessary. This basin I fill with coarse stable manure,—this prevents the plant from becoming dry so soon after it is watered. After it is plunged it requires a bucket or two of water once a week, and the branches must be looked over occasionally and tied up, as they are liable to be broken off by the wind while young. If it grows as it should it will commence to bloom about the middle of July, and continue until frost. After the first light frost take up the pot, cut off all weak and unripe wood, and place it in the green house. It can also be placed under the shelf, if care be taken not to let it get too wet; if allowed to get too wet it will rot. It can be wintered very well in a warm dry cellar with a little attention. My plant was in a sixteen-inch pot, and was over twelve feet in length after being cut back, and was repotted every Spring. But when planted out in a well-prepared border in the greenhouse, the soil composed of ordinary potting soil with a good portion of well-rotted stable manure. When the roots as well as the branches are allowed to ramble at will, there the *Mandevilla* will be seen in all its beauty, laden with large bunches of snow-white, delicious scented flowers. The *Mandevilla* requires considerable space to run over, as it is of exceedingly rapid growth, and the young shoots

should on no account be stopped. It commences to grow about the end of March and flowers from July to October. After it has ceased flowering, all the weak and unripened wood should be cut out, but all the strong and well-ripened wood should be left. While growing, it requires an abundance of water, and should receive a good watering of liquid manure water at least once a week. The *Mandevilla* is unfortunately very subject to the red spider and the mealy bug, and in planting, it should be placed in such a position that it can be freely syringed, which should be done every other evening, at least during the summer months. The *Mandevilla* belongs to the natural order Apocynaceæ, and is a native of Buenos Ayres, from which country it was introduced by H. J. H. Mandeville.

STEAM HEATING.

BY JOSIAH SALTER, ROCHESTER, N. Y.

In looking through the MONTHLY for February, I read, with much attention, the article by R. G. Parker & Co., Boston, Mass., on heating greenhouses, etc., by steam; and being always deeply interested in anything pertaining to horticulture and floriculture, and especially in any efficient and economical method of heating horticultural buildings of any description, I thought perhaps for the purpose of eliciting further information, for my own, and, may be, the edification of others, I would venture a few remarks, and give you some of my ideas about the subject for what they are worth; you can publish such as you think is worth while, or not any, as you may deem best.

Mr. Parker says: "We have about 10,000 square feet of glass, which is heated by a twenty-eight horse power steam boiler," etc. I think Mr. Parker should state the number of cubic feet of air to be heated, rather than the square feet of glass, as one house covered with 10,000 square feet of glass may contain four, or forty times as many cubic feet of air to be heated, as another of the same superficial area.

"Being somewhat afraid of heating wholly by steam, we laid 4-inch pipes, the same as for hot water, and connected with cast iron heaters or boxes filled with steam pipes, which were connected with the boiler. The steam passes from the boiler through the pipes in the heaters and back to the boiler again. The 4-inch pipes are filled with water, as is also the space around the steam pipes in the heaters." So that the house is really heated by hot water, and not by

steam. But the water is heated by steam instead of the direct action of the fire. Again: "We obtain our heat much quicker than by the old method." If so, that is an advantage; because the same body of water contained in 4-inch pipes will contain and give off the same amount of heat whether absorbed from steam pipes or the direct action of the fire in a hot water boiler; and the quicker we get up the desired amount of heat, as a rule, the better, provided we do not make our heating medium over 180° in the effort to get up the heat. Also: "As to economy, we burned last season five tons of coal to 1,000 square feet of glass, which is better by three tons than any have done in this vicinity." Three tons of coal saved for every 1,000 square feet of glass or 30 tons for the 10,000, and the labor of handling the coal would be a considerable item and well worth due consideration.

In order to enable us to judge of the comparative values of hot water and steam, I think Mr. Parker should state the number of feet of 4-inch pipe required to heat 10,000 square feet of glass, and number of cubic feet of air to be heated; or more easily perhaps, the size of the houses, in width, height and length and number of feet of pipe to each house, if double thick glass, etc., and whether the degree of heat to be maintained be merely to keep plants free from frost through the winter, say 35° to 50°, or whether a growing heat of 60° to 80°; all this makes a wonderful difference in the consumption of fuel. Also the cost of the twenty-eight horse power steam boiler with heaters and steam pipes as compared with the cost of a hot water boiler powerful enough to heat the water contained in the same number of feet of 4-inch pipe to the same temperature, under the same circumstances, say 212°.

But it is not desirable to be obliged to heat hot water pipes to the boiling point. We should have heating surface enough to obtain the required amount of heat without ever heating the water over 160° to 180°. It is this slow soft warmth which makes them so preferable to overheated mediums like brick flues, hot air or steam pipes, etc. Mr. Parker quotes from Loudon's Encyclopædia: "Steam affords a simple and effectual method of heating hothouses." Also, "The disadvantages of steam, as a vehicle for conveying heat to hothouses are few." The words, simple and effectual, I do not agree with, notwithstanding Mr. Loudon said so. Mr. Loudon wrote forty years ago, and more, and they did think something of steam for heating horti-

cultural buildings at that time; but they had not then learned so much about hot water.

(To be continued.)

DAMAGE BY THE LARVÆ OF THE ROSE BUG.

BY ALFRED CROFTS, GARDENER TO WM. MATHEWS, ESQ., FLATBUSH, N. Y.

Having been very skeptical myself in regard to the amount of damage committed by the Rose Bug grub or maggot, I will give you the following experience of mine which may be of interest to the readers of the GARDENER'S MONTHLY, and has convinced me of the fact that it is a very dangerous pest to obtain a footing in greenhouses, especially where there are large specimens kept from year to year. I had a large Summit of Perfection geranium in a 10-inch pot, which for no reason apparent to me, has looked sickly all winter, and yesterday I broke a piece out and some of the roots with it, and saw one of the grubs on them; so I at once took the plant out, broke the ball up carefully, and obtained no less than two hundred and twenty-eight grubs from the roots of that geranium which were gnawed all over, and not a live fibre on them except just at the top of the ball.

AMARANTH, SUNRISE.

BY MRS. M. D. W. YARMOUTH, MAINE.

In Mr. Vick's Magazine, for Dec. 1878, there is a colored plate of this new Amaranth. The lower leaves are of a purplish red, and crowned with leaves of brilliant flame color. With his usual caution, Mr. Vick delayed making it known for several years to the public, lest it might not be sufficiently constant to satisfy purchasers. Last year I procured a paper of seed, and was delighted with the results. Though few were like the one represented in the plate, yet all were beautiful and greatly admired by all who saw them. Some of them had leaves partially of the brilliant color, and part of the purple, then the crown of sunrise. These handsome foliage plants, with the Coleus do wonderfully heighten the effect of a flower garden.

PLANTS FOR GREENHOUSES IN SUMMER.

BY J. FYFE.

In visiting the various plant establishments in this country one feels disappointed in seeing nothing but Carnation Pinks, Bouvardias, Cal-las, Abutilons, etc. These seem to be only productions of the greenhouse, and during the

summer months, when these structures should be the gayest they too often represent a bare and deserted appearance in consequence. I would therefore suggest that those plants might be replaced with Gesneras, Gloxinias, Plectopomas, Achimenes, Sinningia Youngii, Codonophora grandiflora, Pentaraphia longiflora, the finer varieties of Coleus, Kalosanthus coccinea, Begonias, Streptocarpus Rexii, Erythrina cristagalli, Caladiums, Fuchsias, etc. Plectopomas form not only a new group of hybrids, but a novel genus of Gesneraceæ; they are summer-flowering, with large-tubed, funnel-shaped blossoms. Begonias, from their profuse flowering quality and the charming variety of color in their blossoms are extremely showy and effective; and the value of Gesneras, as decorative plants, can scarcely be over estimated. Most of them have rich velvet-like foliage, which in the respective kinds varies from green to crimson. If only grown for the foliage they are very attractive, but during the winter they produce splendid pyramidal spikes of blossom which are extremely handsome. Originally, however, the principal color was orange scarlet; now, as the result of fertilization, there are various colors and shades, added to which, the spotting on the flowers of some of the varieties is extremely pretty.

NEATNESS IN GARDENING.

BY EDWARD L. KOETHENS, PITTSBURG, PA.

It has often occurred to me on my many visits to various greenhouses in this vicinity and elsewhere, that there is a general tendency to neglect the details and a want of care in all gardening operations, both indoors and out, among professional gardeners as well as among amateurs, and many are unsuccessful from this cause only. Of these little neglects,—for they are only little things at the time,—I will endeavor in the following lines to point out a few. He who would be successful as a gardener, must make the plants under his care the subject of thought, and he must be constantly on the alert for changes in circumstances which will make changes in the treatment necessary.

There is probably no operation in indoor gardening requiring more care than watering. The quantity and frequency of watering should always be regulated by the state of the atmosphere, and the condition and requirements of the plants watered. It is a common mistake to give a plant the same amount of water when at

rest as when in rapid growth. Again, it is not at all unusual to see watering but half done, when, as a rule, all watering should be done thoroughly, and then not again until the plants are sufficiently dry to need it.

Weeds are often allowed to grow up and ripen their seed, thereby securing a heavy crop of weeds for yourself and neighbor for the following year. Insect ravages are unobserved until the plants on which they have been feasting are almost entirely destroyed; whereas, by a little attention in the beginning, this damage might have been prevented, and with many kinds of insects it is impossible to dislodge them after they have become established. The same holds good with regard to fungoids, etc., the most of which would make no progress where the proper preventatives are used.

The usual condition of the propagating bench is another source of annoyance to the eye of the neat gardener. There is no attempt at keeping the sand firm or level, and the cuttings are stuck in without any regard to order, and in such a manner that the varieties must become mixed. Dead leaves are allowed to accumulate in the sand, which are sure to harbor fungoids and eventually destroy the cuttings.

Greenhouses and hot-beds are left hermetically sealed when they should be well ventilated, and then again they are left open when they should be closed. A short time ago, while visiting a private greenhouse on a cold, windy day, I noticed a severe draught of air sweeping down through the middle of the house, and on investigation I found a ventilator open at each end, giving the air a free sweep of the house; and still the gardener who prided himself on his skill, complained that his roses would suffer from mildew, no matter what he did for them. Overcrowding is another source of failure. Plants which are overcrowded are deprived of their proper amount of air and light, making them spindling and sickly, and in the case of bedding plants, ruining them almost entirely for planting out. This is one of the principal reasons why the market is so often overstocked with sickly plants, which would be dear to buy at any price; for plants when weakened in this or any other way are unable to withstand transplanting, change of temperature, and the attacks of insects and disease. Seedlings from the time of their germination till they become well established plants, require particular attention, and are too often entirely neglected. Wa-

tering, airing and shading them from the direct rays of the sun require constant attention, and not only attention, but also intelligent forethought.

The walks in the greenhouse and in the open air, are also often neglected. In the greenhouse it is rarely that anything is done to them, where with but slight expense they might be boarded, cemented, or protected in some other way, so as to prevent water from standing in them and making mud-holes. In the open air the walks are almost universally hardened in some way, but the edges are left uncut, weeds are left growing in them, and bits of paper are allowed to remain undisturbed. The same can be said of the lawns, but not to so great an extent, for there has been a marked improvement in this direction within the last few years. It might be appropriate just here to say a word about labeling. All labels should be written in a plain, round hand, so that they can be read without difficulty. Plants are often received from well-established firms, which are labeled in such a slovenly manner, that where the name is not familiar it is impossible to decipher it.

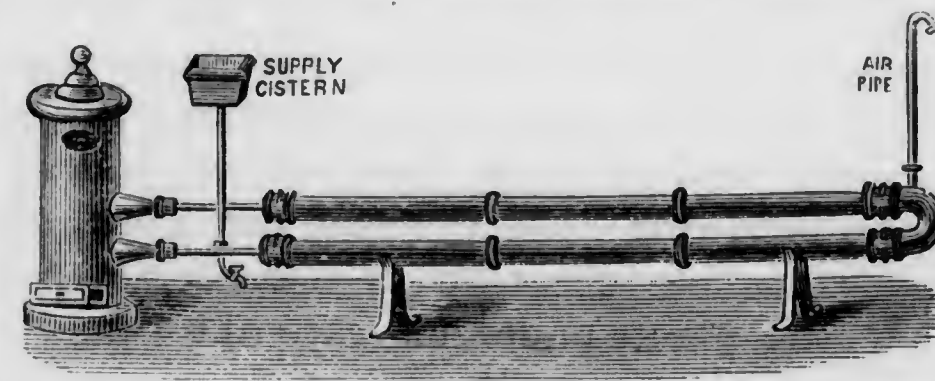
In conclusion, I would state that nothing will add more to the appearance of a garden and its surroundings than strict neatness. Though the failings spoken of above are by no means universal, they prevail enough to make reform desirable. It is but justice to add, that with many this is the result of having too much to attend to, and in such cases the employers are to blame.

EDITORIAL NOTES.

LAMP STOVES.—For small cabinets,—even small greenhouses in some instances,—lamp stoves would prove effectual heaters, but not much has been done with them. We give the following suggestive hints from the *London Journal of Horticulture*: "I wish to give publicity to the following facts, hoping thereby to draw forth, for my edification and the public generally, the experiences of others of your subscribers. My house is 22 feet long, 11 feet wide, and of a fair height. I wished to be able to keep up the temperature during the cold nights of the past six weeks from 60° to 65° F. I tested the lamp stove three nights where the thermometer stood at 45° F. without the lamp. At the end of twelve hours I could get no more heat during the night out of this lamp stove than 6° above the temperature of the place I

put it in to test it. It is made by one of the first makers of the day. I trimmed it myself and attended to it personally, and kept it under lock and key. The fourth night of its burning, I lit it at 7 P. M., and only put up the wicks to half their proper height, meaning to increase their height at 10 P. M. I was suddenly called out from dinner by my man; the house was full of smoke, the wick in a blaze. Fortunately the wind was blowing strong at the time. Both doors and windows being thrown open and the lamp stove removed, the house was immediately cleared, and no harm has resulted, as would have been the case had it been burning benzoline or paraffine. On examination I found this stove lamp inferior in make and workmanship to the fine lamps by the same maker, of which I have burned seven for two years without accident, breakdown, or smell, using petroleum of the best quality. I should like to hear if anyone has been able to get heat up to 60° or even 55° F. from one of these stoves when the thermometer was at freezing point. I should also like to elicit what is the best and cheapest small and effectual heating apparatus for such a house as mine, not wanted for forcing anything."

HEATING SMALL CONSERVATORIES.—The increasing taste for flowers about dwellings calls for better means of heating than has hitherto been effected. Almost all attempts to use the regular house heaters fail; not because the air from the heater is dry, but because of sulphuretted gases. As these conservatories are only with plants in winter, and are thrown open in summer, separate and permanent heaters are undesirable. There is nothing better than a portable hot water boiler; which could



be put up in a few minutes, and taken down when not wanted.

Looking through our advertising columns we note many excellent forms of boilers for large work. Some of them portable, but none that seems just what is needed for these little conservatories and window attachments; small, effective and cheap. We give the accompanying from an English source, which seems something

like what we in America want. Here we have a furnace and boiler combined, with twenty feet of four-inch pipe, and all the necessary fittings complete for \$25. It may be that there is already some contrivances of the kind in existence in our country. If there is, it would, we think, be profitable to advertise them. We are satisfied that if some cheap and easily managed heating apparatus like this were introduced,

small greenhouse or bay window plant culture would rapidly increase. There is no one but likes flowers about the house, if it be not too inconvenient or expensive to care for them.

RAFFIA FIBRE.—Mr. Theo. Schuster, agent for Mr. Wunderlich, places on our table a sample of this fibre. It is very strong, and is much better than anything we know for tying material where strength and neatness is required.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

In the cultivation of garden crops, the hoe and rake should be kept continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will show a great difference in favor of the earthed up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

Cabbage, Cauliflower and Brocoli are now set out for fall crops, and Endive sown for winter salad. Lettuce also for summer and fall use. This, however, must be sown in very rich soil, and in a partially shaded situation, or it will go to seed. Peas, beans, and other crops should be sowed every two weeks. They do much better than when a large crop is sown at one time, and then have too many on at one time to waste.

Melons, cucumbers, corn, okra, squash, beans, sweet potatoes, Lima beans, pepper, egg-plants, tomatoes, and other tender vegetables that do well till the sun gets high, and the ground warm, should go into the soil without delay.

Bean poles should be set before the beans are planted; and near cities where they are comparatively high priced, their ends should be charred. This will make them last some years. Try also short stout poles for cucumbers and

tomatoes. They do remarkably well this way.

Fruit culture for profit has had to contend with over-abundant crops the past year or two, and the trees in such cases are weakened. Now, this may be remedied by thinning out fruit in infancy. This prevents a glut, gives finer fruit, and saves the trees.

Besides thinning the fruit, we should thin the young branches. Handsome forms are as desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton—but it is summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than others. Equality must be insisted on. Pinch out always as soon as they appear such as would push too strongly ahead,—and keep doing so till the new buds seem no stronger than the others. Thus the food gets equally distributed.

Fruit growing primarily for pleasure, to follow with plenty of good fruit, has been much encouraged by the greater success of the grape of late years. There is much more interest in having collections of varieties than there used to be.

As to the best system of pruning grapes, there are several "schools," all contending that their views are "decidedly best." In such cases we have generally found there is much to admire in them all—situations and peculiar circumstances deciding the point in each individual instance. There are a few points incontrovertible to insure success, and it matters little what system of pruning is followed, so that they are secured. First, a healthy set of roots of the previous year's

growth is essential to produce vigorous start of growth the year following. Secondly, after starting, these roots can only be kept vigorous by encouraging an abundance of healthy foliage, to be retained on the vine as long as possible. Thirdly, the leaves of the first growth are at least of double the value to the plant than those from secondary or lateral shoots; they should therefore, be carefully guarded from injury. Fourthly, checking the strong-growing shoots strengthens the weaker ones, equalizes the flow of sap to every part of the vine, and insures regular and harmonious action between all the parts. Any system that secures this does all that is necessary for the general health and vigor of the vine; and where some special objects are desirable, such as dwarfing, particularly early bearing, productiveness at the expense of longevity, special means must be employed to bring them about.

COMMUNICATION.

PROGRESS IN NEW FRUITS.

BY CHAS. DOWNING, NEWBURG, N. Y.

In the January number of the GARDENER'S MONTHLY, you state that Mr. P. Barry referred to the changes which had taken place in the last quarter of a century. An old catalogue revealed the fact that nearly all the pears of that date had been superceded, and this was about the way it went through all the old catalogues. I think Mr. Barry is mistaken, or has been incorrectly reported, because, in looking over his present catalogue, and in his select list, he names more than forty varieties which I find in catalogues of over a quarter of a century old, and many of which are equal, if not superior to many of the new varieties which are now being so highly extolled, and which, probably when they have had the trial of a quarter of a century, will have to be laid aside. I will name some of the old varieties in Mr. Barry's Catalogue which are more than a quarter of a century old, viz: Bartlett, Seckel, Belle Lucrative, Beurre Giffard, Beurre Bosc, Beurre d' Anjou, Beurre Superfin, Manning's Elizabeth, Duchess d' Angoleme, Urbaniste, Tyson, Howell, Lawrence, Winter Nelis, Josephine de Malines, Brandywine, etc. Surely these are not superceded.

As to grapes, Mr. Barry says, "not a variety with the exception of Norton's Virginia were preserved;" but, are not the Isabella and Catawba, which are half a century old, still largely

cultivated? And I will venture to say there are more of these two varieties, especially the Catawba for sale in the markets from October to February, than all other varieties. In fact I do not know of a single variety that has been introduced within the past thirty years that can be found in the markets during the months of December and January. The Elsinburgh, although not now much cultivated on account of the small size of its berries, is yet one of the best and most delicious of the American grapes, and is worthy of a place in any private garden. The Clinton and Herbemont, or Warren—old varieties,—are still more or less cultivated, and the latter is a superior grape where it ripens. [We are sorry that this note was crowded out hitherto.—ED. G. M.]

THE BRIGHTON GRAPE.

BY A. L. MADISON, IND.

In the October or November number of the GARDENER'S MONTHLY, is given an opinion as is an opinion, as Mr. Bunsby would say, by the Editor. For every such opinion the amateur cultivator must be thankful. It had reference to the Brighton Grape, and pronounced it, after an extended comparison, one of the very best, if not the best. In less than a week's time after reading this article, I added eight more Brightons to my fifty-five other varieties. I was greatly disappointed in the Elvira, as a table grape. It may be fine for wine, but for the table it is worthless. Nearly every berry cracked open at the time of ripening the first season, and the past season the flavor was horrid.

[The Elvira was never recommended for anything but wine making.—ED. G. M.]

THE JEFFERSON GRAPE.

BY P. A. VAN WYCK, NEW HAMBURGH, N. Y.

I have a vine in my possession, sent me with some other seedling grape vines, on trial by Mr. Ricketts, the celebrated seedling grape grower of Newburgh, N. Y., one of the seedlings being his celebrated white grape Lady Washington, the best white grape grown. The other I think being worthy of very honorable mention. It is called the Jefferson, a red grape of great excellence, possessing an exquisite flavor, good size, being a great cropper, hanging on the vine a long time in good condition, and a vigorous, healthy grower. I have fruited this variety for the past ten years, and have not given it particular attention, only giving it good, clean culture,

using no sulphur, it being entirely free from mildew. This variety, I believe, is now in possession of Mr. J. G. Burrow, Fishkill, N. Y., who intends putting it on the market next fall. I am not personally interested in this seedling more than in any other, but think it the finest thing in the grape line I have ever seen.

A RASPBERRY-ROOT INSECT.

BY MR. D. SMITH, NEWBURG, N. Y.

This paper was received in its proper season from Mr. Cæsar, but it being in the holiday season I could hardly find time then to give it its proper attention. The roots spoken of in his note I forward to you this day by mail. We have no one with us who can give any information respecting it. Any information you may be able to give respecting it, will be duly appreciated by the many horticulturists in this vicinity.

Hazelwood, Dec. 13th, 1879.

Dear Sir:—A week ago I received from a friend on Staten Island a package of young plants of Raspberry, of stocks which had given a very fine crop this year. When I began to plant, I observed at once very remarkable excrescences on the roots, as well on the small ones as on the main roots. In cutting them off and examining them with a sharp knife, I found small white worms in several of these excrescences, worms about one-eighth to one-quarter of an inch long, thin, and undoubtedly an insect by the sting of which this disease of the roots was produced. I have never heard of such kind of disease, and the chief book, which I always consult in any matter of orchards, etc., the book of A. J. Downing, makes no mention of any disease of Raspberry. Of course I cut off, when I planted, the least vestige of the disease, but would feel obliged to hear some experienced orchardist's information on the matter. I accompany this with some such roots affected by the disease.

I am, yours respectfully,

HENRY L. CÆSAR.

[There are a number of insects that infest the roots of the Raspberry and Blackberry, their attacks usually resulting in galls of more or less size. The particular one which forms these very large ones, would probably very much interest the entomologist. To the horticulturist we fear no other course can be suggested than to be careful in planting, that he has plants with roots wholly free from these galls, and if he has a

plantation badly infested, to dig up and burn the plants, and set out plants on wholly new ground. Some varieties will be found greater favorites with some insects than others, for generally they have nice tastes. When one has a large plantation, it becomes a serious matter to know best how to deal with them. The best advice we can give, is the preventative one,—never plant without examining the roots, so as to avoid introducing an enemy.—ED. G. M.]

JAPANESE PERSIMMONS AGAIN.

BY H. T., ST. JOSEPH, MO.

About the latter part of April, 1878, one of a firm of importers came here from California with several thousand trees of different varieties, which he planted out with the view of working up a large trade for the foreign Persimmon, with this as his headquarters. The trees nearly all grew, and considering the lateness of the season and their long journey, did I thought very well. The winter of 1878-79 was very severe, snow falling to the depth of eight to ten inches on unfrozen ground, followed by the mercury going to about 18° below zero, and large numbers of peach trees were killed. The Persimmon came out last spring, not only dead to the ground but dry as tinder. Last spring they sprouted from the roots and made a growth from two to five feet, were not cultivated at all, and now are as dead as a year ago; not only dead, but the bodies have all the sap dried out and are like dry sticks. This winter has been very open, though one cold snap about Christmas accompanied by a very cold northwest wind sent the mercury to 18° below zero.

The party on whose land they are growing says he noticed that the heavy frosts in the fall killed the ends of the limbs. I would also state that native seedling Persimmons that I have growing, have been badly top-killed both of these last two winters, though the Persimmon is a native of this country.

FIRMING THE SOIL.

BY UNCLE JOE, ROCK FALLS, ILLS.

A practical nurserymen or gardener can estimate the value of Peter Henderson's persistent teachings in regard to firming the earth about seeds and plants, and no one without practical knowledge or experience can detract from the utility of such teaching by slurs or ridicule. For ten years I have tried to impress this one lesson on the minds of those who have bought

trees or plants. Make the soil as firm about them in transplanting as it was when they were growing. And yet the loss from the neglect of this rule by those who have bought trees and plants, and even on my own grounds, has been greater than from all other sources combined. A warm dry wind will penetrate the loose soil, and within a few hours wilt a plantation of strawberries or cabbages. To save them by watering would be out of the question. The remedy is to make the earth solid, and the surest and quickest way is to step the ball of the foot directly on each plant if they are badly wilted, or in ordinary cases on each side of the plant. If the transplanting is done in wet weather, the firming should be deferred until it is dry enough to need it. One day in passing a front yard I saw a neat looking mound a foot high, with a border of sods, and in it were a dozen verbenas, which I had sold the day before, wilted almost beyond recovery. I did not wait for an invitation, but went inside and stamped that bed down to six inches, and went on my way. Every plant lived, and afterward I had the sods removed and the bed enlarged so as to slope down to the natural sod, and it was the admiration of the whole neighborhood. Why will ladies persist in sowing their flower seeds in those little mounds surrounded with sods, and then lug water and fight grass all summer?

EDITORIAL NOTES.

CALIFORNIAN FRUITS.—It is interesting to note how the Royal Crown passes to various fruits, as they travel through our land. In Boston the pear would be the king of fruits; in New York, the apple; in Philadelphia, the strawberry; in Cincinnati, the grape; but in California the orange, with other members of the Citrus family, seems to be in the royal line of succession to the throne. We have before us a report of a Horticultural meeting at Riverside in that State, where they seem to talk orange nearly all the while. One man is commended for raising an orange tree in a water bucket, which bore two oranges in that little kingdom of its own; but this feat is often equaled by our own Dutch house-wives "at home." Another claims the "largest orange—six inches in diameter;" but another we are afterwards told, had one "unsurpassed" collection, some "weighing a pound each." As showing the greatest variety,

one exhibitor had thirty-four varieties of the Citrus family. We note by the proceedings that there are the same arguments in orange, as in peach or other culture, whether seedlings are better than budded fruit trees; with the same opposite conclusions.

The grape however comes in for some respect, especially as raisins; and the Riversidians are sanguine that California will drive all European raisins out of the American market.

The King orange, said to be only known to the Royal family of China, and beyond all others, truly delicious, was exhibited.

APPLES AND PEARS ON THE POTOMAC.—Mr. D. S. Curtiss is preparing a small work on apple and pear culture in the Potomac region, and would be glad of such special information as any one may have. Address him Washington, D. C.

A LARGE POTATO ORDER.—It is an ill wind that blows no one any good. A Dublin seedsman has received an order from the Duchess of Marlborough for 1200 tons of seed potatoes to be distributed among the starving poor in the southwest of Ireland. It is stipulated that they must be all of one specified variety—the Scotch Champion. If each poor person gets ten pounds of seed, this would start two thousand seven hundred people in potato growing again, from this single order.

NEW BUSH BEANS.—As noted recently, our catalogues have now an immense number of kinds to choose from, and one can scarcely see where there is place for another one. But the English papers advertise the "monster," and say: "It differs from the ordinary type in having much larger pods, and in being more productive and very early. It is of robust habit, and the pods, which are produced freely and continuously, range from seven to eight inches in length, and are very fleshy." Have we any already that will come up to this?

SOME LARGE CUCUMBERS.—There may not be much more value in a large cucumber than a small one to some people; but those who do not want to pare all the cucumber away in skinning are not among the number. Besides this, a large cucumber in the winter time is a proof of superior horticultural skill. Mr. Thos. Love, at Dr. Linderman's, at Bethlehem, had unusually fine ones this winter. They ran about seventeen inches long.

SCRAPS AND QUERIES

YELLOW IN THE PEACH.—J. K. says: "In all my experience in England as a gardener, I never saw anything like the disease called yellows here. I do not think the thing is found there, and can you tell the reason why?" [It is not easy to tell why, though there may be guesses why, offered. For instance, it is known that the peculiar conditions which call the various species of fungus into existence require to be very nice, and the English climate may be unfavorable to this species; or it may be that the species of fungus which causes the yellows has not been introduced there and would grow well if it were. Most of the Peaches grown in Eng-

land are grafted on the Plum stock, and the Plum root does not seem to be as choice a morsel for the fungus as the Peach root. It may be that it attacks the Plum sometimes,—but so far we have never known of a case, though it does attack other trees besides Peaches; at least the fungus appears to be the same.—Ed. G. M.]

CALIFORNIA RAISINS.—A. W. H. says: "Page 81 of the MONTHLY gives a profit of 35 cents per vine and over \$960 per acre."

[It certainly does look a little that way. But we are sorry that it is so, for we have conscientious scruples against believing that any one can make \$960 clear profit per acre on grapes or anything else in California, or anywhere.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

PINE AND OAK FORESTS.

BY MARGID DIGRAM.

There is a theory abroad, that in the light sandy soils of districts bordering the Atlantic and Gulf Coasts, the pine and oak invariably succeed each other when either is removed by the agency of fire, or the woodman's destructive tool.

From some observations I have made through several of the Southern States, I believe this long-established theory to be but half correct. The reiteration of it by a gentleman whom I met on a train in West Central Georgia, induced me to look with especial care at the forests passed through after leaving him, and until the City of New Orleans was reached. Directly along the Gulf Coast the pine undoubtedly reigns supreme. Marshes and the borders of streams, of course, form an exception to this statement. In such localities, several species of oak and magnolia, the tulip, sweet-gum, and other trees are to be met with in abundance. Through the uplands, however, one may travel hundreds of miles and see the pine alone in every stage of its growth, from the little plant of six inches, up to the giant of 80 to 100 feet. These different ages and sizes of the tree are not always found in forests apart, but small and great are

very frequently seen together, the new growth coming up amidst the remnants of the old.

If we, however, go from fifty to one hundred miles back from the coast, the state of matters will have materially changed, and there our long-used and oft-repeated theory will be found at home, and altogether correct. Woods mainly of Spanish Oak, upland willow oak, and Black Jack, with here and there a pine left from the preceding forest, will be noticed in conspicuous alternation with other wooded tracts nearly or entirely covered with the long and short leaved pines.

The alternating theory, I fancy, has become established in the following way. People living in sections of the country where this view is a true statement of facts, might naturally enough suppose the rule would hold good elsewhere and everywhere. They would indeed be so possessed with this idea that they would not notice any deviation from it when such was casually presented to them. On the other hand, residents along the coast, where the pine forest is the invariable rule, not having any occasion to form a similar theory, would not possess one, and there would therefore be no conflict of thought with the adjoining section, and consequently no rectification of the theory's supposed universal application. A difference of soil is, I presume, the sole reason for the diversity of forest habit, as I have above stated.

TIMBER STATISTICS.

BY T. T. SOUTHWICK, ROCHESTER, N. Y.

From a late issue of the *Lumberman's Gazette*, I compile a few figures and facts showing the immense slaughter taking place in our timber lands.

The figures cover the operations in only a few localities, and when to them are added a fair estimate of the amount yearly cut in other States, and the very considerable quantity got out in Canada, some idea of the destruction of American forests can be formed.

I understand the statistics cover pine lumber only, though the amount of lumber yearly cut in the so-called hardwoods, such as Oak, Elm, Hickory, Walnut, Chestnut, Bass and White-wood, etc., must be millions upon millions of feet.

As showing for what trifling pay people destroy timber, I would mention having seen about a year since, on the banks of a Canada stream, a quantity of Elm logs estimated at twenty million feet, for which farmers received only two dollars and fifty cents per thousand feet, delivered on the bank of the stream. These figures and facts are not new, but they seem startling and can but make the thoughtful ponder.

The timber cut in Michigan for 1879 is reported as follows:

Saginaw District,	736,106,000 feet.
Huron Shore, . . .	410,646,000 "
Interior Mills, . . .	518,670,000 "
Lake Michigan Mills,	1,338,127,000 "

Total amount cut, 3,003,549,000 "

Cut of the Wisconsin and Mississippi Valley, 1879, 1,583,185,000 feet.

Business of Williamsport, Pa., 1879, 213,120,000 feet.

Recapitulation of above figures for 1879:

Michigan,	3,003,549,000 feet.
West Miss. Valley,	1,583,185,000 "
Williamsport, Pa.,	213,120,000 "

4,799,854,000 "

The total cut for sixteen years in one of the four Michigan districts, viz, the Saginaw District, is 8,360,000,000 feet, or an average of more than 500,000,000 feet per year.

During the same period 8,700,000,000 feet have been floated down the Muskegon and Tiltabawasse rivers of Michigan.

During ten years Williamsport, Pa., has used 2,340,708,595 feet.

EDITORIAL NOTES.

PLANTING TREES.—As the subject is of national importance, we lay before our readers the following particulars of what a single man has done in this matter of planting. David Landreth's first tree plantings in Virginia were in the Spring of 1872, when 5,000 European Larch, and 1,000 Abies Douglasii were set out. These were followed in autumn by 25,000 Cypress, Larch, and Yellow Locust. Since then there have been extensive annual plantings of the same varieties with additions of Black and White Walnuts, Pecans, Hickories, Chestnuts, Wild Cherries, White and Green Ash, Tulip-Poplars, Ailanthus, Catalpa, White Pine, Italian and American Sumac.

Last Spring the number of seedlings planted were as follows: 1,000 Catalpa Japonica, 40,000 Catalpa speciosa, 150,000 Catalpa syriaca, 20,000 Ailanthus, 6,000 Abies Douglasii, 10,000 each of White Oak, Hickories and Tulips.

Experience has shown that some of the varieties are unsuited to the location; such have been destroyed and the land replanted with approved sorts. Those that have most radically failed, are the Larch, Cypress, and Locust. The two first by reason of uncongenial soil; the latter through insect depredations, in one instance a field of 100,000 trees, ten feet in height being stung to death in a single week. Many other losses have been met with, as by fire, cattle trespass, depredations by rabbits, and want of experience. This latter has now been gained and the work will go forward with fewer drawbacks. The lands upon which these plantings have been made, are the clearings and old corn fields of distinct and widely separated farms, though all in the same county. His successors intend to plant all their stump lands, to the aggregate of 5,000 acres, as rapidly as the natural forest is cut off.

TREE PLANTING IN MASSACHUSETTS.—We are pleased to learn from the *Boston Herald* that tree planting in Massachusetts is progressing. "A few farmers in Nantucket and Cape Cod began about thirty years ago raising forests in this manner, and their plantations are now, perhaps, in many respects the most interesting examples of successful arboriculture which can be seen in the United States. They only planted the seeds of one of our native trees, the common pitch pine (*Pinus rigida*). This is one of the least

valuable of our trees, but there is a handsome profit to be made in planting it on waste and unproductive lands, irrespective of the shelter and protection which even a small grove of pine trees is capable of affording. The seed of the pitch pine is easily procurable. It is cheap, and possessed of such vitality that the farmer planting it in the sand, even of Cape Cod, can be sure of his crop. At different times about ten thousand acres on Cape Cod, principally in or near the town of Orleans, have been planted with the seeds of this tree, while in Nantucket something like seven hundred acres were planted between 1850 and 1855. The land on which the Nantucket plantations were made, was worth, at the time of planting, \$1 an acre. Land of the same sort can be bought for the same price now, although the planted land has long been assessed at \$8 per acre, and finds a ready sale at \$15 or more an acre. The land first planted, thirty years ago, will cut from fifteen to twenty cords of firewood to the acre, worth at least \$3 a cord on the stump. This wood is not of the best quality, and from good land the yield per acre would be ridiculously small.

"In order to test the possibility of growing cheaply some of the more valuable pines from seed in this way, a series of experiments were undertaken two years ago, under the direction of Prof. Sargent, of the Harvard Arboretum, by Mr. Henry G. Russell, on his estate at East Greenwich, R. I. Four plots, each one acre in extent, were laid out; in shallow furrows, four feet apart, were run both ways, and at their intersection the seeds were planted in the most careful manner possible, special pains having been taken to procure the best seed which could be found in this country or Europe."

The kinds sown were the White, Austrian, Corsican and Scotch. This seed sowing where the trees were to grow was not a success, as very few seeds came to be trees. But though not a success, the experiments are extremely useful as showing what may not be done. There is the fact that pines do well in Massachusetts soil. All that is to be learnt is how to raise them cheaply and successfully, so that the crop will be as certain as corn and not too costly at the outset.

"Mr. Russell's example is worthy of more general imitation. By devoting his time, his land and his money to experiments of this nature, he is doing much to make tree-planting easy and profitable for the next generation. His experimental plantings already cover more than

a hundred acres, and are being constantly and rapidly extended. Having failed in raising pines cheaply from seed, he is now engaged in trying a similar experiment with the Ailanthus. If he can demonstrate that it is practicable to cover his sandy shore with this valuable tree, at a cost of not more than a dollar or two an acre, he will have introduced a new era into New England tree-planting, which will add much to its agricultural prosperity."

PROFITS OF TIMBER CULTURE.—About three miles from the residence of the writer, and in Philadelphia County, Pennsylvania, is a piece of chestnut timber land, about thirty acres, which was cut off forty-five years ago, and a new crop suffered to grow up. This is now being cut and sold for posts. The posts sell at \$30 per 100 dressed and delivered to purchasers. We have made a careful estimate, and find this tract will yield 5,400 posts per acre, which at thirty cents each, makes \$1,620, or \$36 per acre, per annum. Land near it has recently been sold for \$150 per acre, and this is probably the market value of cleared land by which this forest stands. The writer happens to know that this is exactly what the land there was worth twenty-five years ago. We may say that no increase in value has been made since the forty-five years the timber has been growing, and this fact affords an excellent opportunity to judge of the value of timber land, uninfluenced by any other circumstances. Of course, there is some labor and expense in cutting, shaping, and delivering the posts, but this expense has of course to be spread over the whole forty-five years, and amounts to but a very small percentage of the \$36. The only fair charge against the timber is compound interest on the \$150 for forty-five years, and the taxes. The latter would be only about \$1.50 per annum. From out of this tract during the period it has been in forest, large quantities of thinnings have been taken, which have served for rails, and so forth, which will be a fair set off to compound interest. Simple interest will be even more than ought to be charged against the product. Thus, we have about \$9 an acre cost, against \$36 of income per acre, a very good profit indeed, and going to show that under some circumstances timber culture will pay. This tract is but fifteen miles from the centre of the City of Philadelphia, and within what is now the city limits.

SCRAPS AND QUERIES.

TREES FOR SOUTHERN KANSAS.—W. M., Lazzette, Cowley Co., Kansas, writes: "I am about to plant somewhat extensively of various trees. I planted twenty-five Tulip trees, one year old last spring, and they all lived through a very trying summer, fall and winter. A friend of mine has a number of the *Magnolia grandiflora*, which have survived three Kansas seasons. I have been to much trouble and expense already, and regret to say that most of my experiments have not been crowned with success; but I keep trying, I presume from force of habit. I have failed invariably with coniferous evergreens. Do you consider the Blue Gum hardy? I planted last spring a quantity of seeds called here the China Tree. Do you know it by that name, and if so what is its botanic name? I raised about

three thousand, and they did remarkably well. I would be glad if you could furnish me a botanic description of the mature tree."

[It is almost impossible for one to tell what will do well in the newer settled portions of our country, except by actual experiment. It would, for instance, not have been safe for any one to have recommended the *Magnolia grandiflora* or the China tree for Cowley County, and it is a valuable piece of knowledge that they will do well there. The Tulip tree we have before had the impression would do well. It is a capital tree for the Western plains from its deep rooting proclivities. The China tree is *Melia Azederach*. It stands a good amount of cold in winter, when it is able to grow vigorous and strong by long continued summer heat. Still, as we have said, it is news that it will do well in Kansas.—ED. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

BLUE AND OTHER COLORED GLASS.

(Concluded from page 120.)

Thus prepared, the six glasses were placed side by side, in the light, in the temperate house of the Museum. These experiments, to all appearance so simple, proved a veritable labor of Hercules, and without the assistance of the skillful and intelligent superintendent of the temperate house, M. Newman, I should most assuredly have been unable single-handed to carry out the experiment without changing the conditions, as during the extremely hot weather it was necessary to water the young plants twice a day to keep them alive. Nor was this all. It was necessary during the course of the experiment to change the fluids colored with aniline every four or five days, according to the intensity of the sunlight. The other colored fluids were more permanent, and required changing less often.

After carrying on these experiments most carefully all through the summer, the following results were obtained: The plant exposed to the violet light exhibited a luxuriant growth, its foliage was of a fine deep green, and very

abundant as compared with that of the five others. That was all. The plant had neither blossomed nor fruited, clandestinely or otherwise.

The plant exposed to blue light had made an ordinary growth—nothing exceptional. That, too, was all. No fructification.

The plant exposed to the green rays had grown badly. It was ailing and nearly dead, notwithstanding the intervention of the white light. The disastrous effects of green light on plant life had not been mitigated by the white light from above. This perfectly accords with M. Bert's observations.

The plant exposed to yellow light had made an average growth—rather under than over; but it had flowered and fruited as well, and very rapidly. The fertilization was clandestine still.

The plant exposed to orange light had grown rather badly, and looked ailing.

The plant exposed to the red light had grown nearly, perhaps not quite as well as that exposed to violet light.

None of these plants, with the exception of that exposed to yellow light, had fruited or even flowered.

Now, why this exceptional developement?

A thermometer placed in the glass furnished the explanation. The temperature in the glass exposed to the yellow light was much more elevated than that of any of the other glasses, contrary to all theory, as the red and orange rays being the least refractory should have given the highest temperature. I leave physicists to explain the phenomenon.

I pointed out the rapid growth of the plant exposed to the yellow light to M. Houleau, who was much surprised at it, and remarked that whenever before he had exposed plants to the action of yellow light, they had been killed off as quickly and surely as though they had been put in the fire. But I called his attention to the fact that here there had been an interposition of white light, which appeared to have mitigated the effects in a very remarkable manner. In other respects, M. Houleau's experience accorded with what might have been anticipated from the great increase of temperature in the yellow light.

These experiments were repeated during three consecutive years, and always gave the same identical results. In six other glasses, similarly disposed, we planted six seeds of the same plant, but the disheartening tardiness of their vegetation hindered any observations.

It will be seen that our special object was not attained. The stimulus which was to raise this singular plant out of its abnormal frame of existence produced no effect upon it whatever. Its clandestine mode of fertilization was steadily repeated—that is, whenever fertilization occurred. But if we failed in our purpose, the conclusions deducible from our experiments are none the less interesting and calculated to prove useful in a horticultural point of view.

Despite their very restricted scope, limited as they were to a solitary little plant, our observations established the persistent recurrence of certain phenomena justifying the following conclusions: 1. That plants exposed to violet light, modified by white light, grow luxuriantly, thus partially confirming the experience of General Pleasanton.

2. That plants exposed to yellow light, always supposing it to be mitigated by white light, fruit very rapidly. These facts, we repeat, are likely to prove of great utility in horticulture.

We purposed repeating the experiments above described, so as to ascertain whether the same results are obtained when plants are grown in

glass houses provided with violet, yellow, and white lights.

These experiments promised to be of great utility, but unforeseen circumstances have obliged us to postpone them for the present. We hope to resume them at some future day.

THE SKY LARK IN AMERICA.

BY EDWARD TATNALL, WILMINGTON, DEL.

The Duke of Argyle will probably be surprised to learn that the sky lark was introduced into this country about twenty years ago by John Gorgas, then of this city, now deceased, and let free by the hundred in this vicinity. A few were seen after the first winter, but in the second year nothing was heard of them. Probably our winters are too severe for them. I do not wish by this to deter any one from trying it again, but merely to honor one who did so at his own expense.

SOME EARLY VIRGINIAN SPRING FLOWERS.

BY MISS M. EVELYN HUNTER.

Few of our native spring flowers come earlier to gladden the earth with their fragrant presence, than the delicate wax-like *Epigæa*, or *Trailing Arbutus*. Its leaves are heart-shaped and evergreen, but the color is so dingy, and the texture so rough that no one is prepared for the clusters of rose-colored flowers that lend such a peculiar charm to the plant, and change it from a rough coarse trailer, to the most exquisitely refined beauty. I have seen its flowers of the purest white, when growing near the water, but generally they are rose-tinted.

We have several varieties of the wild violet; first the swamp violet with its shining smooth green leaves and vivid blue flower, veined with a deeper shade. Next comes the common little wood violet, with its hairy dark green leaf, and deep blue flower delicately veined with white, brightening the sheltered spots and scattered here and there through the brown leaves. But the most beautiful of our native violets is the bird-foot, with its light green leaves three to five cleft, and large handsome flowers, one broad pale or deep lilac purple or blue, the two upper petals sometimes almost a royal purple, and velvety like a pansy. These are found in light sandy soil growing in large masses, the pale blue more abundant than the pansy flowered violet, and occasionally a white one, with a dash of blue through it. See this mass of shad-

ed color, with the sunlight glancing on their porcelain-like petals, and making the dew drops sparkle over them, and the scene is almost too dazzling for the eye to rest upon.

Passing from the sunny hill-side to one sheltered by pines, here we find a new contrast of color. Nestling in the glossy-brown pine needles, are clusters of wild pinks, shaded from the brightest rose color to the pale flesh-colored variety. Their leaves are covered with a gummy substance, which makes it unpleasant to handle them, but the flowers are very pretty and bright.

SHORTIA CALACIFOLIA.

BY WM. FALCONER, CAMBRIDGE BOTANIC GARDEN, MASS.

The history of this extremely rare native, is now quite generally known, but for the sake of those who may not have heard of it I may say it is a neat and pretty little plant with *Pyrola* or *Galax*-like leaves and pure white campanulate blossoms. In 1778 it was discovered by the elder Michaux in the mountains of North Carolina; he secured imperfect specimens for his herbarium. No more was seen or heard of the plant till 1839, when Dr. Asa Gray upon examining the Michaux herbarium found the specimens upon the strength of which, in 1842 he designated and described it as a new genus, giving it the above name. Beyond that specimen, not another vestige of the plant dead or alive, was known to exist till 1878, when it was rediscovered by Mr. Hyams, who presented us with a fine living plant.

Our plant received in 1878, was potted and wintered in a cool greenhouse where it blossomed prettily in February, 1879, and caused quite a sensation in botanical and scientific circles. Hundreds of visitors came specially to see it. In April we planted it in a shady rockery out of doors, leaving it there unmolested till November, when we lifted and repotted it, and again wintered it in the greenhouse. As it had nearly completed growth before being planted out of doors, it did not grow much during the summer, but it plumped up considerably and appeared quite cosy and at home. In September I observed it had formed seven solid somewhat oval crowns, closely embedded, as it were, in the neck of the plant. These were flower buds, but to the casual observer would likely appear like growth-crowns. They did not emerge from their beds till early in February when they arose slowly, perfected and expanded. The

flowers opened on stalks an inch long, but these stalks lengthened with age to three and four inches; and when the plant was in full blossom it looked a little way off, like a primrose. The blossoms which are solitary, in mid-day perfection measure $1\frac{1}{2}$ inches across, and last in good condition some two weeks or more. It has not ripened seed with us because the pistils mature before the stamens, and we would require to have two or more plants in blossom, having a few days difference in their stage of advancement in order to secure fertilization. Our plant has five leaves measuring from 3 to $4\frac{1}{2}$ inches long, that is (taking one $4\frac{1}{2}$ inches), leaf-stalk $2\frac{1}{2}$ inches., blade 2 inches by $1\frac{3}{8}$ inches wide; besides these there is a dense rosette of much smaller leaves. The color of the old leaves is a glossy bronze green, but of the young ones a bright polished green.

Last year I referred to the *Shortia* as "a sweet little plant, not showy by any means, but a welcome garden alpine," but this year on account of its increased vigor and floral superiority over last year, I pronounce it a charming little beauty. Of course I cannot say it is a hardy plant, because I have not proved it to be so, nevertheless I feel assured it is as hardy as *Galax aphylla*, its companion at home, and which is hardy here.

EDITORIAL NOTES

THE MISSOURI BOTANIC GARDEN.—Recently we had to note that as a whole, the number of species cultivated in Cambridge, entitled it to the distinction of being the best botanic garden; that is to say, the best as regards the number of species grown. If we are to regard the beauty of the grounds in connection with botanical culture, then the Missouri gardens are much the best. We refer to this matter again, as we notice the subject is occupying much attention in Europe. Mr. Shaw's Missouri Botanic Garden, is wholly the work of one man, still living, and could hardly expect to be in competition with an old one, and one which is such a centre of botanical correspondence as that one at Cambridge is. Still it is a magnificent piece of work for even one man to boast of, and Mr. Shaw may well be proud of its eminence. Even in its botanical treasures it will compare with Cambridge. Its collections of Oaks and Cactuses are much superior to the Cambridge collec-

tions, and it is likely that some of the tropical collections are also superior. Of Palms alone, there are sixty species in the Missouri Gardens, with nearly a hundred of large growing tropical plants that are rarely seen in any collections.

If we are then to decide this question, it must only be by defining what we have to decide. If a mere botanical garden as such is generally understood, then Cambridge is our decision already stated,—but if horticultural and landscape gardening features be,—and we really think they ought to be combined with a collection of plants of botanical interest, then the Missouri Gardens would be regarded as a better botanic garden than Cambridge.

PREMIUM TO MR. DARWIN.—The Academy of Sciences of Turin, has awarded Mr. Darwin a premium of about \$2,500 for his discoveries in botanical science. Mr. Darwin will appreciate it the more as coming from that part of the world. The North of Europe has generally shown the most appreciation of scientific progress.

NEW OR RARE NATIVE PLANTS.—Young botanists may be in hope of finding new plants, or new stations for old ones, even in much explored locations. Dr. Gattinger, of Nashville, has recently found near Nashville, *Leavenworthia stylosa*, new,—and *Leavenworthia torulosa*, only found before in the barrens of Kentucky. As to the old and new locations, a distinguished botanist recently said to the writer that he believed he could yet find more new species in New England than in Colorado.

PRONUNCIATION OF BOTANICAL NAMES.—L., Baltimore, Md: "How should *Deutzia* be pronounced? We have always said it as if written *Dootzia*, but our German gardener insists that it is a German name and should be pronounced *Doytzia*?"

[You are right; the gardener is wrong. It is not a German but a Latin name. It makes no difference whether the name is derived from the "Rooshun or the Prooshun," when it becomes Latin it follows Latin rules. The rule is that every vowel is sounded in a distinct syllable. In this case *Deutzia* is really *De-ootz-i-a*; as a whole the first syllable would be indistinct, and the pronunciation sound as "*Dootzia*." Jones, in English, is but of one syllable; but when in a Latin nominative for a plant it would sound *Jo-nees-i-a*.—ED. G. M.]

ENGLISH NAMES.—A nurseryman recently showed us an order he had received for a plant of "the great flowered and panicle producing *Hortensia*." The writer was evidently much opposed to hard latin names, and was badly put about to find a soft and easy one.

THE WARATAH.—While we in America sing the praises of our native *Rhododendrons*, the Australians glory in the Waratah, which with the immense heads of flowers certainly makes no mean rival to the *Rhododendron*. A new species has been discovered there and named by Baron Von Mueller, *Telopea orcadus*.

THE WHISTLING TREE.—*Colonies and India*, says this is *Acacia fistula*. It appears an insect bores the stems in such a peculiar manner, that when the wind blows, the tree whistles.

THE MAIDEN HAIR TREE.—The botanists have determined under the laws of the science, that we must drop *Salisburia adiantifolia*, and say *Ginko biloba* when we refer to the Maiden Hair tree.

SCIENCE IN AUSTRALIA.—The Linnæan Society of New South Wales, has taken steps to advance the study of biological science, by affording special opportunities for the investigations of the Botany and Zoology of Australia. A "station" is to be established near Baron MacLay's Museum near Sydney, which is to be "open to all students of the male sex."

AUSTRALIAN BOTANY.—Mr. R. Fitzgerald, the Deputy Surveyor-General of New South Wales, has issued another part of his admirable work on Australian Orchids. "This" says a correspondent "is the fifth decade of an opus in large folio size with colored plates drawn from living specimens, and illustrative of a charming tribe of our vegetation. The work is evidently intended to embrace in course of time all the orchideous plants of Australia, and will greatly facilitate the recognition of many of these lovely species."

SCRAPS AND QUERIES.

FOLIATION AND HEAT.—E. F. H., West Plains, Mo., writes: "In the March number of the MONTHLY, pp. 87, in answer to 'Inquirer,' Burlington Kansas, you say: 'So far as known, the buds of plants burst into leaf solely from the action of heat on the buds, and the temperature of the earth has nothing whatever to do with the act of foliation. Is this so, with regard to the flowering of our fruit trees? Will not root

action, by feeding the bud cause the bud to grow and burst into flower independent of the temperature of the atmosphere, if the earth is sufficiently warm. If not, why mulch our trees to keep from early bloom. I have peach trees mulched and unmulched standing side by side; the unmulched are now (March 8,) in bloom, while the mulched show little indications of bloom for many days yet."

[We are glad to get letters like this. Such letters show an investigating spirit, which it would profit intelligent horticulture did it prevail more extensively. No practical gardener would doubt the proposition as presented to "Inquirer," nor do we suppose any teacher of vegetable physiology would question it. For those who have not been in either school it may be useful among many similar observations that might be quoted, to say that it is no unusual thing for gardeners in forcing grape vines, to have a branch of a grape vine run out from a house that is being forced, to one that is cold—that is from a forcing grapery to a cold grapery. The branch in the cold house will remain wholly dormant, while the one in the heat is in leaf and flower, and advancing on towards a fruiting state. Again cases are by no means uncommon where grape houses have the roots out of doors and the branches inside. The temperature of the earth may not be much above the freezing point, but the vines go on to leaf, and fruit just as well when the proper heat is applied to the branches as when the ground containing the roots is exposed to summer heat. Indeed the writer of this once knew of an outside grape border, which was very narrow, perhaps not four feet wide, and about two or three feet above the surrounding level. The grape stems were drawn through a hole in a sixteen-inch stone wall to the house inside. There is every reason to believe that in that severe winter the ground in that border was frozen two or three feet thick,—but the grape vine pushed into leaf and flower on the application of heat with the most perfect indifference to the frozen roots, so far as any human eye could see. This is among the numerous evidences that the practical gardener might adduce.

The physiologist also has his separate field of reasoning. He sees a willow log, or for that matter many other kinds of log, cut off, lying on the bare ground, without any roots, and yet push buds into leaf, and grow when the warm weather comes, without any roots at all!

Then there are many facts which might be drawn from meteorological observations, which prove the same. For instance the past winter in Pennsylvania. There it has been one of the mildest winters, in a certain sense, on record. The earth has not been frozen much over an inch deep all winter; while as a general thing it is frozen from one to two feet the whole winter. Tree roots, instead of being for four months subjected to a temperature below the freezing point, have probably been favored with a temperature of 40° or 45°. Yet usually the willow trees before our window, as we write are quite green by the 21st of March, but on the 20th of the month are quite brown,—and no other trees have buds forwarder than they usually have, and the reason is that though the winter atmospheric temperature has not been low, neither has it been high. We have had scarcely any warm days. Indeed the atmosphere all winter has been decidedly cool if not frosty. In short it is the atmosphere and not the soil that causes the development of the leaf.

Now as all this must be true, we come to our correspondent's special case. There is no doubt of his facts, for it is a matter of common observation, that an orchard in grass does not bloom so early by a few days as one on cleared ground. But we never heard before that it was because the "ground was warmer," but because the air was cooler. Just as we find a nice grassy field a much pleasanter place to walk over on a hot day than on a dry grassless road. The grass keeps the atmosphere cool as well as the earth.

It is quite likely if our correspondent would place a thermometer six inches or a foot under ground where the bulk of the roots are, in the mulched and the unmulched cases, he would find the thermometer much the same in both instances,—on the other hand if he place a thermometer on the trunks of trees "in grass" and trees in "cultivated" ground, and keep the record by a registering thermometer, he will find the atmospheric heat favor the clear ground trees.

The mere scientific or old-fashioned practical man may think we occupy too much space in "telling nothing new," but the inquiry of our correspondent, as well as of "Inquirer" in the first instance, shows that some of these things have to be gone over again and again,—and in this case, besides the strict scientific value of the question it is one of great practical importance. Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 12.

BY JACQUES.

Books and Flowers.—I can tolerate life said a would-be philosopher, if I have abundance of books and flowers, and he was not far wrong. Somebody makes the following verse:

"The hunter a fawn to Diana will slay;
The maiden, with roses will cast to the hours,—
But the wise man will ask ere oblation he pay
For a house full of books, and a garden of flowers."

But the "envoi" of the writer in the *International Review* is this:

"Gods, give or withhold it! Your yea and your 'nay,'
Are implacable, scornful murmurs of ours,
What is life? 'tis not here you can bribe me to stay
For a house full of books, and a garden of flowers."

Gardening in its higher sense, is both an art and a science. It has arrived at this estate by gradation,—slow compared with the development of many other pursuits; but that is consequent upon the complex nature of its parts. The development of a knowledge of geology, chemistry, meteorology, vegetable physiology, and botany—indeed something from all human learning has gone to perfect the science of Agriculture and Horticulture,—pursuits affording as wide a range of research in their ramifications as any topic occupying the mind of man, and as important in their results as any occupation of man. Gardening, which is agriculture upon circumscribed spaces, has ever shared with the latter the esteem of mankind. Socrates said, "It is the source of health, strength, plenty, riches, and honest pleasure." And an eminent English writer said, "It is amid its scenes and pursuits that life flows pure, the heart more calmly beats."—*Burnett Landreth on Military Post Gardens.*

The development of field and garden culture to its present condition, is the result of the union of theory and practice. The greatest expansion has been in a chemical and physiological point of view, and this development, strange as it may seem, dates back not farther than forty years.—*Ibid.*

To *Notes and Queries*, as well as to the editor of the MONTHLY, whose strictures are nevertheless deserving of attention, I beg to say that

after careful examination, the best Cedar of Lebanon at Laurel Hill Cemetery is not yet cut down; only the second best of the three has been ruthlessly destroyed by ignorance and folly combined. The larger and cone-bearing, was a week ago erect and glorious, but from the same causes may soon be no more. The owner of the lot in which stood the doomed tree, no doubt feels the rebuke; he had no other right to be remembered.

And now; what a pity that accident sometimes places ignorant men in care of public institutions. They may ride in their own carriages, with horses fed perhaps on the profits of quackery, but are too ignorant to be entrusted with ornamental places; they may shoot wild geese—*arcades ambo*,—and turn out guinea fowls to be again wild for sportsmen's folly to be amused at; but they should be contented with their idleness and preposterous assumption. How differently Kew Garden is managed; and just here let me read aloud to all Park Commissioners, whose law may be good but their practice abominable. Planters of cemeteries and parks should have the enlarged ideas dominant at Kew, where the study is to promote rational recreation and the improvement of taste, from the familiarity with exquisite forms and combination of coloring, aided by the attendant prevalence of order in every department. Both these public institutions should afford opportunities for culture by examples of all kinds of beauty. That they do not do this is somebody's unpardonable fault. After ten or more years of bad government, Fairmount Park is found to be overrun with poison vines!

Planting a Tree.—A beautiful custom, not too frequently followed, is the placing of a tree for a friend in his own grounds. Queen Victoria does this in memory of her visit, and her loyal subjects point it out as one of their precious possessions; visitors pluck a leaf, press and preserve it. We once knew a pair of old ladies, whose botanical nomenclature was peculiar and attractive. All their plants and trees possessed a value to them as gifts from friends. Mrs. — or Mr. — had presented this and that. A gentleman of our acquaintance, much inclined to visitations when in England, is accustomed to ask the privilege of planting a Cedar of Leba-

non in the grounds of his hosts. Mr. Penn, the great grandson of the Founder of Pennsylvania left such a tree of his own importation in the garden of a personal friend in Germantown, where he had passed much of his time during his long visits to us, and it flourishes much. There is no better commemorative act of friendly companionship. The tree is a perpetual and growing evidence of regard, to be passed down to posterity, when—it may be—traces of giver and receiver are nearly lost. The memory of a friendly visit may be preserved even in a more simple manner by the planting of a favorite enduring bulb or flower.

Vegetation and Electricity.—It may be that electricity is to play a great game in cultivation. So far, it is ascertained by experiments that the influence of electricity is probably modified by the species, by climate, season, temperature, dry or wet weather, and degree of light; possibly, also by the geological and mineralogical nature of the ground; any conclusion is yet premature.

Common Sense, says Prof. Huxley, "is science, exactly so far as it fulfils the ideal of common sense; that is, sees facts as they are, or at any rate without the distortion of prejudice, and reasons from them in accordance with the dictates of sound judgment. And science is simply common sense at its best, that is, rigidly accurate in observation, and merciless to fallacy in logic."

About one quarter of the French wine-growing districts are now destroyed, and it seems hopeless to arrest the progress of the plague. Prof. Raynal, of Poitiers proposes, as a last remedy, the radical destruction of vineyards situated at the boundary of the infected districts, and the establishment of a neutral zone.

Terrapins.—Good, and the best things sometimes run the risk of being all eaten up,—the supply scarcely meets the demand. Such an article is the delicious terrapin, now so high priced as to be deniable to the masses. Baltimore has a terrapin reputation; one man collects them from every source and keeps them for sale by thousands. They survive a winter without food, but gradually starve if not fed; the weight diminishes, as they feed on their own fat. They are now brought from California even, those from Visalia and the Sacramento, the first especially being much sought after. The coasts and bays of the Carolinas are now nearly exhausted. Who will be first to cultivate the terrapin? Some of the above comes through an American

scientific journal, but what has it to do in the GARDENER'S MONTHLY? Much. It is one object of Notes and Queries to show that the means of livelihood are most extensive; that the country is so extensive as to make any valuable production, properly introduced, lead to fortune. Very lately the terrapin, like the salmon is canned and sent everywhere. Later, and as it were to-day turtle soup finds a demand; this, as in the case of the whale and the terrapin is likely ere long to exhaust the world's stock of those esteemed animals. Already the terrapin is more than quadrupled in price; the whale is becoming extinct, and the turtle is rising to a fabulous price. It is not likely that the world can cultivate the whale, but it is believed the other two are capable of indefinite extension. Who would have believed a few years ago that ostrich farming would be made into a profitable business; or that by freezing, the hotels can have a superior turkey every day in the year, and the housekeeper the same luxury in perfection from a tin can? Gardeners, look about you—this market scarcely supplies a good quart of plums, while in Rochester, where the proper care is taken, they are plentiful. This is but one example.

Explorers for new plants have been immensely aided by steam transportation. The writer was once going the rounds of Kew Gardens with Sir William Hooker, when the latter introduced Sir Samuel Cunard as his great friend who brought plants to Kew from all regions without charge. Now we probably have a new region for novelties in Stanley's Africa. Sir William Hooker was a Scotsman, tall, lithe in manner, with scarcely a trace of his native accent. He spoke of our Osage Oranges, and said he had just received a semi-comic message from the Queen, requesting no more such fruit should be sent to her table. Altogether this grand director of Kew was a most interesting and loveable man.

EDITORIAL NOTES.

GARDENERS AND SITUATIONS.—Never for many years have we had so many gardeners applying to get situations. The country is overrun with them, and not one in a dozen will find anything to suit him. They are mostly newcomers into the country, and they seem disappointed and declare that America is no place for gardeners. In some respects this is true, and again it is not true. Gardening itself has

changed in some respects since first-class gardeners were in great demand. There was a time when choice fruits, vegetables and flowers were great luxuries. Only the wealthiest could command them. And the wealthy were willing to pay well for that intelligence which only could raise them successfully by artificial means. Since the age of steam the whole world is within a few days of anybody's feet, and in the depth of snow and ice the fruits and vegetables of the tropics are cheaply at command. It is true that these cannot be brought from distant places quite as nice and as good as a first-class gardener could make them. There are some who still will have the best, but the facts we have stated have cut down immensely the "great places." Another difficulty has been that as good places grew scarcer, it became harder for good gardeners to find them. Employers not well able to distinguish between the good or the bad, or "experts" not being able to lay their hands on them just as needed, poor fellows get into the good places and disgust employers. Not long since, we saw a "Tomato-house" for forcing. The winter expense could have been hardly less than \$150, and three poor little plum-like fruits were all so far up to the middle of January. There are many other influences which we have not space to enumerate, which keep down the demand for the best educated class of gardeners.

On the other hand, there is an immense field for highly intelligent landscape gardeners and florists. There is scarcely a large town in the country where there is not at the present time an opening for a good man of this class. At the present time "florists" with little greenhouses may be found almost everywhere; but large numbers of them are dirty, ignorant fellows, who have no possible influence on the community, yet they manage to "get on," and in many cases get rich. Very few take a gardening paper, or indeed a paper of any kind, and know absolutely nothing of anything under the sun than to potter among the filth of a few slimy flower-pots, in a "greenhouse" which a respectable pig would grumble at. We have noted for some time past that wherever the intelligent gardener goes he is welcomed. There is a universal want to know about gardens and plant-houses and trees, and fruits and flowers. There are few gardening examples in our country. The florist must make his own customers. The people are willing to be educated, and to pay for the education. The gardener who knows all

about trees and flowers,—who understands the principles of landscape beauty, and how to apply them cheaply and effectively to small places as well as large ones,—who has good command of the pen, the pencil and the tongue,—who knows enough of natural history and branches of science connected with gardening to make his company pleasant, and who to these accomplishments has fair business ability, and who has, say four or five hundred dollars to sustain himself with until he becomes known, will find an "opening" waiting for him in hundreds of towns in our country.

In brief, for combined intelligence and business ability, there were never better opportunities for success in the gardening world than now. For intelligent gardening without business ability,—and for the mere average "gardener" we fear the demand is not equal to the supply.

FLORICULTURAL MISSIONARIES.—It is surprising that those who love flowers and gardening, and know how much their own pleasure is advanced by having nice gardens and flower culture everywhere about them, do no more than they often do to increase a love for flower culture in their neighbors. Now and then some one sees the point and tries. Before us is a series of letters in the *Melrose Journal*, by our esteemed correspondent Mrs. Edson. She tells the Melrose people that it is not to their credit that they have not the weakest pretension to any public garden; and suggests that an association for the cultivation of æsthetic taste would be of as much use to the town as "jubilee concerts," and various "unholy" devices for amusing the people. She would also have tree-planting associations, and says: "My idea is for the town to pass a law authorizing the association to select and plant suitable trees,—and see them properly cared for,—in all our streets where there are not enough already, the abutters to pay the cost of the same. Perhaps there is some better way. I merely offer this as a passing suggestion."

She closes her admirable remarks by the following piece of "gospel" truth: "Coming now to the practical value of all ornamental planting and garden decoration, real estate dealers (and they will not, I think, be accused of being sentimentalists), will tell you that there is no better way of improving the value and saleability of property, than the tasteful laying out of the grounds belonging to it; a house, be it ever so grand and imposing in architectural design, with

as many towers and gables as there are stars in the skies, is at best but a lonesome, desolate-looking place, without trees and shrubs and clinging vines to make it look cheery and habitable. There has developed of late years, a passion for lawns; and a well kept lawn is a very pretty thing, though getting a trifle monotonous when duplicated a hundred or more times, even to the inevitable and omnipresent bed of Geraniums, which some writer has wittily denominated the 'scarlet fever.'

EVOLUTION AND CREATION.—By George C. Swallow, Professor of Natural History in the University of Missouri.

Works of the character of this little pamphlet seem to crowd our table. This, coming from a distinguished Professor of Natural History, demands attention from the Natural History department of a work like ours. With the latter part of the title we have nothing to do. As was stated in the review of Mr. O'Neill's "Refutation of Darwinism," science commences at the very opposite end of the line from revelation,—one coming down, the other going up,—and have no relation with each other that we can see until it may be that they some day meet. At present science has not advanced far. What we do not know of nature probably far outweighs what we do know; and, instead of science being a certainty, it is no uncommon thing to find what was supposed to be "science" yesterday, is not science to day. With this fact before us it seems strange to find one of Prof. Swallow's eminence talking of the conflict between science and revelation, however excused may be those who, outside of science, choose to consider there is fair ground for argument. Revelation is understood to be a positive fact, admitting of no question; science admits that its work is still going on, and that it is far—very far—from having reached its end. And we do not think Prof. Swallow states the question as the evolutionist would himself put it. "The real question at issue is * * whether all plants * * have been produced * without supernatural power? Whence came the first plant?"

So far as we know evolutionists ask no such question, or if they do it is simply as one which they may request their opponents to answer. They content themselves with looking at existing facts. They show that new forms are continually coming into existence, and that these new forms spring from parent forms as truly as

that new substances proceed from old substances. They show for instance, that a great number of plants exist with all the distinctive characters of species, and which would be regarded as distinct species, only that it happens to be within human knowledge that they had other distinct forms for their parents. Whether the laws which produce these new forms are natural or supernatural may be a theological question, and one which each person may want to settle according to his own theological proclivities; but it seems scarcely fair to assume that this is "the real question at issue" with those who are trying to find a law in nature for the succession of forms, as well as for a succession of individuals.

As to the manner in which the succession of forms arise there may be ground for a difference of opinion. Mr. Darwin's idea of natural selection implies a slow modification, through long ages, and a dropping out of weak forms; and it is chiefly to this that Prof. Swallow pays his respects, but there are other evolutionists who believe in rhythmic waves of growth in individual plants, and rhythmic waves of growth in the evolution of form—periodic seasons of rest, and periodic activities,—but Prof. Swallow does not venture at all on this ground. In other words his work is not quite up to the times.

NATURAL SCIENCE AND RELIGION.—By Prof. Asa Gray, New York: Charles Scribner's Sons.—These are two lectures recently delivered before the Yale Theological School, and now issued in book form. Our interest in the work from a horticultural point of view is chiefly derived from a statement made in a recent lecture by the Rev. Joseph Cook, given in Boston on—so the authorized version says:—"February 30th,"—a day, which, by the way, rarely occurs in other parts of the world. Dr. Cook says: "There are essential parts of Darwinism which are being silently modified or abandoned. Virchow, of Berlin; Allman, of the British Association; Dana, of New Haven; Wallace, of England; and Gray, of Harvard University, have all criticised Darwin in such a way that the right hand of that system of thought, or the doctrine that natural selection is an adequate cause of the origin of species is now a very limp and lame, I had almost said wholly severed member." As quotations are made from these lectures of Dr. Gray, we were anxious to see how Dr. Gray was silently modifying or mutilating his well

known Darwinism. We have read the work carefully through, but have been unable to find what Mr. Cook found; and we are rather inclined to believe it is Mr. Cook that is silently finding that he never had any thing serious to fight, than that Dr. Gray has abandoned the contest.

In the first place it must be remembered that Mr. Darwin has never ventured to propose any theory of life. He finds life in the world in various forms, and he finds these forms possess an innate tendency to vary. He conceives this tendency to be influenced by good to the individual, and therefore that the variations will be likely to follow those conditions most favorable to individual development. Now, the great question is, how do those assemblages of individuals which we know as species originate? There are groups of plants comprising individuals, so nearly like each other, that even a child would say they were "all of one sort, only a little different." The botanist groups these together. As soon as he finds some not quite like the others in essential particulars he stops. Sometimes he finds scores of these close resemblances,—sometimes only a few,—but there is generally a line where he feels he may stop. He calls them species. There is nothing certain or definite about the dividing lines. At one time he finds the species grouped together go on in regular order, as 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. At other times there are breaks in the apparent close connection, as 1, 2, 4, 6, 8, 9, 10, 12. What is more natural than to suppose that close relationships were once the rule, and that the regularity has been broken up by unfavorable circumstances? In looking into nature, Mr. Darwin found that this is actually the case. There is a continual struggle for life, and only those most fit to contend with the circumstances survive. It is only the diversity that makes what man calls species. It is this dropping out of an occasional connecting link that makes the diversity,—in other words, that makes species,—and to show how this dropping out occurs under a continual innate power of varying, is the theory of Mr. Darwin, under the name of "natural selection." Some objection has been made to the theory that natural selection might vary, but not create form; but this objection could not come from a morphologist who has not yet been able to go to the bottom of form. New forms in the individual plants are known to grow out others. The seed vessel

grew out of leaves. It can be no worse in any law bearing on the origin of species.

Once in a while, as new facts appear, investigators like Gray, Darwin, and others, will naturally make suggestions, or advance hypotheses which may not accord with their own generalizations. To use a common, but not very elegant phrase, they for the moment "slop over." We believe this has often been the case in the discussion of incidental matters which the undoubted truths of Darwinism have led the world to examine. The writer of this has now and then found himself in antagonism to other students of nature in these side issues. But it will not be fair on this account to say of such issues that they evidence an abandonment of Darwinism; and we are quite sure no one who reads this little book without prejudice will believe that Dr. Gray is one bit less a Darwinian than he ever was.

FORTY YEARS OF PEAR GROWING; TELLING HOW TO AVOID THE BLIGHT AND INSURE GOOD CROPS, by Wm. Parry.—We have read this pamphlet by Mr. Parry with a great deal of interest, but we must confess that the question how to avoid the blight, (fire blight) is not answered satisfactorily to our mind. Mr. Parry's answer is to plant the Sand Pear and its hybrids. They will not blight it is said. How do we know they will not? The only answer is that Mr. Kieffer has had the tree a great number of years on his grounds, and it was never blighted. But Mr. Kieffer has others of the common kinds of Pears, and they have never blighted. Indeed the old-fashioned kinds of Pear rarely blight in the north of Philadelphia.

Mr. Parry's essay reads as if there were no hope for the Pear, that it must go, and these new Chinese hybrids all that is left to replace them. But it is a fact that in many districts the fire blight has never been known,—while others that have been badly infected are now wholly free. We know of one orchard that fifteen years ago came near being totally destroyed; but the affected branches were cut away, new ones sprouted out, the orchard has never had a sign of it since, and there are Pears by the wagon load. Much as we value the new hybrids, we can by no means go the length of pronouncing them blight proof,—or of believing that the old class of Pears are in the slightest danger of being exterminated.

SHELDON'S DAIRY FARMING, Part 8, Cassel Petter & Galpin, New York. This part is

mainly devoted to forage plants; and has the popular farm grasses for its lithographic plate.

DIARY OF A BIRD, by H. D. Minot, Boston; A. Williams & Co.—A pleasant little tract calculated especially to interest the young.

SUCCESS WITH SMALL FRUITS.—We are glad to know that the beautiful and useful chapters of Mr. Roe, in *Scribner's Monthly* are to be enlarged and issued shortly in book form.

FRUIT GROWER'S FRIEND.—By R. H. Haines. This pamphlet gives brief but very full notes on most branches of fruit culture, and will be a very useful guide to beginners.

COMMERCIAL RELATIONS WITH CANADA.—Letter to George Brown, Esq., of Toronto, by Wharton Barker of Philadelphia. This tract enters on a discussion of the commercial relations between Canada, and the United States. It shows that the influence of the protective tariff on the general prosperity of the United States has been so marked, that no political party will materially disturb that policy for many long years to come; that the people of the United States would be perfectly willing to have free trade with Canada, provided European goods were not introduced under such laws over the Canadian borders; and that finally the only course for Canadian prosperity is to adopt the United States tariff as its own,—the United States being in such case no doubt willing to modify its tariff somewhat to meet Canadian interests. The Canadian seaboard would then be the only custom-house line, and the United States and Canada boundaries would be free.

While this suggestion would undoubtedly make Canadian prosperity advance with a bound, Canadians would probably rather remain in their present far-lag-away condition, than offend the mother country by having a tariff against it instead of the United States. Still Mr. Barker's pamphlet will no doubt be welcome to reflective minds.

ACCURATE CATALOGUES.—It is a great pleasure to note the accuracy with which the very full and elaborate American catalogues are gotten up. Here, before us, are some from Miller & Yates, Hoopes Bro. & Thomas, Parsons' Sons & Co., Woolson & Co., Ellwanger & Barry, and some others not immediately before us as we write, that will defy the criticism of either botanist or proof-reader. It is highly creditable to the commercial classes of our country to be able to record these facts.

POST GARDENING.—By Burnett Landreth.—The *United Service Review* for March, has an excellent chapter by Mr. Landreth, on the importance of establishing gardens in connection with military posts or garrisons on the frontiers. The article is not only interesting from a purely practical point of view, but is very pleasant reading to those who love to see highly intellectual and scholastic acquirements in horticultural writings.

JOHN DICK, JR.—There are few better known firms than that of John Dick, nurseryman, florist, and seed grower. Like so many of the older race about Philadelphia, Mr. D. begins to feel that he cannot do business for ever, and it is announced has parted with his florist business to his son J. D., Jr., whom we have reason to believe will continue the business as successfully as his father has done. He has the good wishes of a large circle of friends.

ROBERT FORTUNE.—We recently took occasion to refer to the brilliant but almost unrequited services of Mr. Fortune, who, as our readers know, is one of that highly intelligent class of gardeners which has done so much to bring honor to the whole profession. We are sorry now to have to say who was, instead of who is, for the telegraph brings news of his decease at the age of 67. Selecting horticulture as his occupation, at an early age, he obtained employment in the Botanical Gardens of the Scottish capitol. Having in that position made the most of the opportunities afforded for acquiring knowledge, he was promoted to a post in the Gardens of Chiswick, and in his new sphere acquitted himself with so much credit that in 1842, when news of the peace with the Celestial Empire reached England, the Botanical Society of London appointed him its collector of plants in Northern China. Setting sail in that capacity, Mr. Fortune, besides sending home some of the finest plants that ever reached that country, became familiar with the varieties of Chinese life. His adventures by land and sea were full of romance, and his "Three Years' Wanderings in China," in 1847, attracted such attention that its author, whilst curator of the Physic Garden at Chelsea, was, in the summer of 1848, intrusted by the East India Company with a mission to make investigations respecting the tea-plant. After an absence of more than three years, Mr. Fortune returned to England, and having published his

valuable work, entitled "Two Visits to the Tea Countries of China," started once more to pursue his adventurous career, and prosecute his scientific researches. The results of this last journey are embodied in "Residence Among the Chinese, Inland, on the Coast, at Sea; being the third visit, from 1853 to 1867." In 1857 Mr. Fortune was employed by the United States Patent Office to collect in China, the seeds of the tea-shrub and other plants, a duty which occupied him two years, and which he discharged with considerable success.

DR. HOWSLEY.—A friend writes: "The venerable Dr. Wm. M. Howsley, of Leavenworth, Kansas died at Central City, Nebraska on Mar. 5th, 1880. He was afflicted with Bright's disease of the kidneys for several years past, which caused his death while visiting his daughter in Nebraska. Kansas has lost a useful man. He was president of the Kansas State Horticultural

Society for four years, and has always been enthusiastic in the work and study of horticulture."

J. W. MANNING.—The proprietor of the Reading (Mass.) nurseries, was born at Bedford, New Hampshire, in March, 1847, and commenced his very successful business where he is now in 1854. His nurseries have been one of the cheap sources of supply to the people of New Hampshire, but the Legislature of New Hampshire in 1879, enacted a law forbidding the sale of trees, shrubs or vines not grown in the State. The people of New Hampshire can however go to his nurseries and buy, and numbers no doubt will.

F. ANDRE MICHAUX.—A portrait of this distinguished botanist was recently presented to the American Philosophical Society. This Society was founded by Benjamin Franklin, and recently celebrated its 100th birthday.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

PENNSYLVANIA HORTICULTURAL SOCIETY.—As already noted in our magazine, the Pennsylvania Horticultural Society had but a comparatively small interest in the magnificent Horticultural Hall of Philadelphia, which was owned by a stock company, the Society being one of the stockholders. It was recently sold at sheriff's sale, and bought for a little less than \$75,000 by Mr. W. L. Schaffer. Mr. S. bought it that the Horticultural Society might not be deprived of its home, and has generously announced that the Society shall have free use of it on all occasions.

To mark their appreciation of this generous act, a series of resolutions, beautifully engrossed and elegantly framed, were presented to Mr. Schaffer on the 9th inst.

Major-General Robert Patterson, now in his eighty-ninth year, and one of the former presidents, made the presentation speech, commenting on the munificence of Mr. Schaffer, and

the honor the horticulturists of Philadelphia were conferring on themselves by honoring such a generous public spirit. Mr. Thomas Meehan followed in a brief address, alluding to Mr. Schaffer's well known unostentatious manner of doing good, and expressing the opinion that, gratified as every one must be at the generous deed, and pleased as he was sure Mr. S. must be at this public acknowledgement thereof, every one knew that in the pleasure of doing the good act he felt an ample reward.

Mr. A. W. Harrison handed the testimonial, which is incased in a handsome walnut frame, is signed by Messrs. Robert Buist and Samuel W. Noble, Vice-Presidents; Caleb Cope, Robert Patterson and J. E. Mitchell, ex-Presidents; Thomas Meehan, Corresponding Secretary; Thomas P. James, Professor of Botany; A. W. Harrison, Recording Secretary and Treasurer; James C. Booth, Professor of Horticultural Chemistry; J. J. Rathvon, Professor of Entomology, and by the chairmen of all the different committees for 1880. It expresses the grate-

ful acknowledgement by the Society of Mr. Schaffer's kindness, the high regard entertained for him personally, and its appreciation of the admirable manner in which for years he has presided over its affairs.

This Society has resumed its old plan of monthly meetings. The March meeting was a great success. The meetings in future will be held March, April, May, October and November. The novelties of the day will thus have a chance to be made known.

The following is the report of Floral Committee for March: "Your committee on plants and flowers respectfully report that upon this, the first occasion of a revival, after many years, of the former custom of monthly displays, a very attractive and instructive exhibit was made by some of our leading florists, who have thus testified their devotion to the interests of the Society by contributing without expectation of reward, no premiums being offered on this occasion.

"Mr. Buist presented a fine collection of named Coleus and thirteen varieties of his own seedlings of 1880; also Cyclamens of great variety and beauty; Cineraria giganteum of very large and abundant bloom; Azaleas and other plants, all of high quality.

"From Henry A. Dreer came a collection of his Hybrid Seedling Coleus of the most varied and brilliant hues, and containing many singular and graceful forms of foliage, an exhibit unsurpassed in the history of the Society. Hugh Graham & Co. contributed a collection of decorative plants of much beauty and in fine condition. Mr. Robert Scott made a welcome display of Azaleas, of rich and abundant bloom and pleasing variety of color. Mr. John Bell brought an assortment of cut flowers of hardy and cold frame plants, which proved very attractive to our guests, among them three varieties of Hellebore and the Mahonia japonica, whose fragrance rivals that of the rose. LaRoche & Stahl offered a handsome basket of graceful proportions and design. A. & J. Maguigan gave variety to the tables by a display of choice tropical fruit. We congratulate the Society upon the success of its first revival of the monthly displays, so popular in former days."

THE EIGHTH CINCINNATI INDUSTRIAL EXPOSITION.—Remarkably liberal premiums are offered for horticultural products, and plant and fruit growers begin to look after this annual exposition as something worth encour-

aging. It is open this year from September 8th to October 9th.

AMERICAN ASSOCIATION OF NURSERYMEN.—The meeting this year will be held on the 16th of June, in Chicago, at the Grand Pacific Hotel.

THE MASSACHUSETTS HORTICULTURAL SOCIETY.—The schedule of premiums, very liberal, competition open to all the country, can now be had of Mr. Robert Manning, Boston, Secretary.

KANSAS STATE HORTICULTURAL SOCIETY.

—The tenth semi-annual meeting of the Kansas State Horticultural Society, will be held at Hutchinson, Reno County, Tuesday, Wednesday and Thursday, June 1st, 2d and 3d, 1880, in response to an earnest invitation from the Reno County Horticultural Society. "The meeting will open promptly at 10 o'clock on the morning of the first day, and all persons interested in the horticultural welfare of Kansas are invited to be present and assist in making the exercises interesting and useful.

This being the first meeting of the Society in the Arkansas valley, the citizens residing in that section of the State are most earnestly requested to make special efforts for a general attendance.

The Reno County Horticultural Society and citizens of Hutchinson, have generously offered to provide free accommodations for all attendants from abroad, and reduced rates in fare will probably be granted by the several railway companies in the State, which rates will be published in a subsequent notice.

Attendants are requested to bring specimens of all classes of fruits, flowers and vegetables in season, and wood growths of the different classes of trees,—fruit and forest; also of insects found depredating in any manner the interests of the horticulturists.

"Come to this semi-annual reunion, all ye who love fruits and flowers, home and beautiful surroundings, as members of common interest bent on developing the noble branch of industry, horticulture,"—says the secretary.

THE NEW YORK HORTICULTURAL SOCIETY.

—This body is meeting with growing success. It is already attracting attention outside of the city, and promises to be as famous as the Pennsylvania or Massachusetts Society. Many of New York's leading citizens have become members, and they are already talking about "a large hall of their own." The whole country wishes them the best of success.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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Number 258

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

About this season of the year, trees and shrubs transplanted in spring will often show signs of weakness. If so a severe pruning will help them. Sometimes there are hollow spaces about the roots—places where the soil does not touch. In such cases pounding by a heavy rammer has often been found to do a heap of good. If the soil be very dry a watering may be necessary. For this make a basin about the tree so that the water will be compelled to soak in and not run away. And all this is true of shrubs and flowers, hedge plants and vines.

Some trees and flowers will be benefited by a mulch to keep the earth cool. The heat of the climate seldom hurts anything; it is from the heats of the ground that so many things suffer. Roses are now pegged over the ground, instead of being trained to stakes; and they show by the increased flowering, how much they like the coolness the branches make by shading the ground. Speaking of roses reminds us to say that most people now know that the more flowers are cut from rose bushes the more they bloom. They stop blooming when they have to mature seeds; and this is true of most flowering things.

Flowering shrubs are often "pruned into shape" in the winter; and an ugly thing a

pruned bush becomes. If useless branches are taken out in the summer time, and the stragglers nipped back, it is wonderful how different the result will be.

Many grafted trees throw out suckers from the stocks, and people wonder why the stem becomes diseased and the plants die. Watch for suckers now and take them off as they appear. This is very important in the cases of Kilmar-nock Willow and grafted roses.

No trees, evergreens especially, should be suffered to have grass grow about them for a year or so after planting. It becomes "rank" in the deeply loosened soil, abstracts moisture, and otherwise seriously interferes with the tree. When the tree gets a fair start, grass does less injury, and when it becomes a tough sod, and the tree by its shade, or say by frequent mowing keeps the grass short, the grass roots do not penetrate deep, and the sod is of benefit, by keeping the surface spongy, and the substratum cool.

Many herbaceous plants, such as Phloxes, Hollyhocks and similar things, that are scarce and valued, may be propagated now very easily, by taking portions of their flower-stems before the flowers open, and inserting them as cuttings in a half shaded, cool, and not dry situation. Layering of many things, shrubs, half shrubby perennials, etc., should be done before the young wood becomes too hard, if good plants are re-

quired the first year. Most plants root more quickly by having a notch cut in the layered shoot. Good, rich soil, put just about the layers is very important. Good soil favors an abundance of roots. One of the greatest mistakes in gardening is the prevalent notion that plants in a poor soil have a greater proportion of roots than in a rich one.

By the modern rage for bedding plants, the old-fashioned hardy herbaceous plants have been sent into back corners. At this season there will be many gay flowers out, and those who love these things, should note their names as they see them in their neighbor's grounds, and get them in season. Too often hardy plant borders look bad, because of a want of system in selection. Those which bloom in May should be put together, and those which flower in June, and so on. An autumn group of Asters, Solidagos, etc., is a beautiful sight.

COMMUNICATIONS.

ESSAY ON HORTICULTURAL PROGRESS.

BY PETER HENDERSON.

Read before the New York Horticultural Society March 9, 1880.

(Concluded from page 132.)

It is estimated that there are 500 florist's establishments within a radius of ten miles of the City Hall, New York, and that the capital invested in land, structures, and stock is not less than \$8,000,000, the product of which is mainly for New York City alone, and when we consider that New York contains only about one-fortieth part of the population of the United States, and that horticultural taste is certainly not higher here than the average of the country, it will be seen that the business of floriculture alone, without taking into consideration that of fruit and vegetables is one of imposing dimensions. There is but little doubt that in nearly all the manual operations necessary in horticulture, we are in advance of Europe, and no better evidence can be had in proof of this assertion than the fact that the cultivator gets one-third less for his products in the markets of New York or Philadelphia, than the same products bring in London or Paris, though the price paid for labor is one-third higher here than there. Nor does it follow that the cultivator here works at less profit, for he does not; so that the only solution of the anomaly is that

our necessities have compelled us to make such progress in our operations that our products are produced with less labor. For instance, when in London, in 1872, I saw twenty men in one squad, digging the ground in one of their market gardens with spades. For the past thirty years there is not a market gardener on Long Island or New Jersey who would allow his ground to be dug with a spade, even if done for nothing, for he knows that the plow and harrow will pulverize the soil better; but John Bull, in the neighborhood of London, at least, had not found that out in 1872, and it is no doubt the tenacious adherence to such primitive methods that is making Europe in many of the industries of the day, play second to the United States. Yet it must be admitted that in some phases of horticultural progress, we are yet far behind Europe, particularly in the ornamentation of our public grounds. We have nothing to compare with the Battersea Park, London; the Jardin des Plantes, of Paris; or the Phoenix Park, Dublin; and when comparison is made of the grounds surrounding the villas in the suburbs of these European cities, with our suburbs here, the comparison is, if possible, more against us, for there it is rare to see a neat cottage without a well kept lawn, and good taste shown in the planting of its flower beds, its well trimmed fruit trees and neat vegetable grounds. Here as yet, we have hundreds of expensive mansions, particularly in the suburbs of New York, where the so-called garden surroundings tell all too plainly of the mushroom wealth of its shoddy owner.

We can excuse the wife of a day laborer planting her seeds of Morning Glories or Lady's Slipper in the potato or corn patch; but when the owner of a \$10,000 cottage has the vulgarity to invade his flower beds with beets or tomatoes, he is carrying his utilitarian principles beyond the bounds of ordinary good taste. But against these instances of coarse taste, happily getting less each year, we have hundreds of cases where the decoration of private grounds by flower beds, not only shows the refinement of the owner, but at the same time gives pleasure to thousands of the people, to whom the adornments of the parlor are as a sealed book.

Within the past ten years the style of decoration known as ribbon lines, or massing in colors, has made great progress, and is well done in the public parks of Boston, Philadelphia,

Baltimore, and Albany, and is a never failing attraction to strangers on a visit to these cities, and to none more than those from New York; for the feeble attempts at flower decoration made by our Central Park, or Prospect Park, Brooklyn, has hardly ever been such as to make them aware that the thing had been attempted. But if our commissioners are so far behind those of our sister cities in making our public parks attractive,—private enterprise is not. Lewellyn Park, Orange, N. J., owned by private gentlemen, is unequalled in decorative planting; and the extensive grounds of Mr. Hoey, at Long Branch, N. J., Mr. Sargent, of Fishkill, and Mr. Dinsmore, of Staatsburg, N. Y., and others less publicly known, are models of gorgeous beauty during our summer months, and offset to some extent the inefficiency of those in charge of our public parks, who so poorly appreciate the public wants.

Boston, Philadelphia, Baltimore and Albany, have not only left us behind in the decoration of our public parks, but the two former have advanced far ahead of New York in matters connected with societies for the advancement of horticulture; although as I have before stated, our first New York Horticultural Society was started in 1818, it can hardly ever be said to have been a long continued success; it was for many years past out of existence, until resurrected again as our present Society in 1876.

The Boston Horticultural Society was started in 1829. Its hall costing about \$250,000 was built in 1865. The Society had almost unvarying success from the start, and particularly since the erection of the hall in 1865. The Horticultural Society of Philadelphia was begun in 1828; its first President was the well known Horace Binney, and among the members of the executive committee in 1829, we find the names of Nicholas Biddle, Robert Patterson, Caleb Cope, and David S. Brown, who were at that time the leading citizens of Philadelphia. Their Horticultural Hall was completed in 1866, it covers a plot 75x200 feet, and cost \$221,000; as in Boston, the erection of a building for the special use of the Horticultural Society, gave a great impulse to the work in Philadelphia. There is no question that the successful condition so long continued of the Horticultural Societies of Boston and Philadelphia has had much to do in accounting for the more general taste displayed both in the public parks and private grounds, in and about both

those cities than at New York. Without some centering point where new or rare products can be exhibited for comparison or competition, no individual effort by advertising or otherwise, can bring them before the public. Thus, the finest or rarest specimens of fruits or flowers may be hidden for years, or even completely lost to the community; or, on the other hand, articles without merit may be offered for sale either through the ignorance or dishonesty of the sender. This in places where there is a live horticultural society, can never be done to any extent, for without the society's stamp of merit, the sale must ever be limited. Our New York Society is now in a fair way to emulate Boston and Philadelphia, and before long, it is to be hoped, we will be in a condition where our influence will be so felt, that we no longer will be ashamed of comparison with these, or with any other cities in the Union.

HOLLYWOOD PARK.

BY WILLIAM SUTHERLAND, PHILADELPHIA.

(Concluded from page 133.)

I next entered a range of houses, consisting of a large rotunda-shaped one in the centre, and two large houses running east and west from it. The central rotunda contained some magnificent specimens of Ferns; prominent among them was a very large plant of *Cybotium crinitum*, said to be the largest in America. Arranged between the ferns were large pans of different varieties of *Selaginella*, whose varied forms gave an indescribable effect to the surroundings. Here, also, was a gigantic specimen of Pitcher Plant, *Nepenthes Hookerii*, with over seventy-five very large pitchers on. In fact, had Mr. McKay told me there were a hundred, I could have readily believed him, so truly grand was the specimen. There were, also, some very fine plants of Bananas, Bird's Nest Ferns, Gold and Silver Ferns, and Tree Ferns, nestling among which was a very fine plant of Elk's Horn Fern, *Platynerium grande*, growing on a flat piece of board without earth of any kind. A very rare, curious and valuable plant.

The western wing was devoted to the growth of Orchids; of these there were a very large collection. Prominent among them was some very fine specimens of the Holy Spirit plant, *Peristeria elata* in full bloom, with spikes of flowers three and five feet in height. There were also some very fine plants of *Aerides*, *Vanda*, and *Dendrobium* in bloom; but of course the late

winter months are the time to see the Orchids in their full glory. At this time and in early spring it is no infrequent thing to have a thousand Orchids in bloom at one time. Most of the plants that were suspended from the roof were grown on clay blocks, burnt soft in order to be porous to the moisture. This not only added to their neat appearance, but gave no harbor to insects, which is too often the case with wooden baskets. There were some twenty-six kinds of *Cypripedium*, and at least a dozen varieties of *Nepenthes* whose pitchers were very singular and beautiful. But before I leave the Orchids I must not forget the *Phalaenopsis Schilleriana*, said to be one of the largest specimens in the world.

The eastern wing is devoted to the growth of the Cactus, of which there are some nine thousand plants of about five hundred varieties. Any attempt to enumerate the names would take up too much of the MONTHLY's valuable space. It is sufficient to say that the collection contained specimens of almost every known kind in the world, many of which had pet names bestowed on them. One prominent and curious specimen is known as Rip Van Winkle, on account of being covered with long white hair. Many of the plants were in bloom, and the gorgeous tints of the flowers contrasted strangely with the ugliness of the stems.

Range number four was originally built at Paris, and was on exhibition at the World's Fair at Vienna, in 1870, where Mr. Hoey purchased it. The building is a very pretty and neat affair, some one hundred and fifty to two hundred feet long, the eastern wing of which is devoted entirely to the growth of *Dracenas*, and the western wing to the cultivation of *Crotons*, both of which contain some magnificent plants, whose various colored foliage would require the brush of the artist to describe rather than the rambling pencil of your correspondent.

House number five is known as the *Camellia* house, being devoted principally to the cultivation of this magnificent flower, of which there are some three hundred and fifty specimens.

We next come to the Rose houses, three in number, which cover a space nine hundred feet long and twenty-five feet wide. Part of the houses are built with sash, but the new range of them are fixed roofs. The roses are all planted out in rich and deep beds of soil, and consist principally of *Cornelia Cook*, *Safrano*, *Bon Silene*, *Douglas*, *Niphetos*, *Isabella Sprunt* and

Marechal Neil. The air seems heavy with their perfume, and look which way you will the eye rests on innumerable buds. In the height of their season one thousand to twelve hundred is their average crop. These are sent to Mr. Hoey's personal friends, and distributed among the various hospitals and charitable institutions of New York and Brooklyn.

Leaving the Rose houses I was next shown two houses devoted to the cultivation of *Smilax*; and a description of Mr. McKay's system of growing it may not be out of place. After the plants are cut down, water is gradually withheld and the roots allowed to become partially dry; they are then taken up and potted in six-inch pots and kept in a dormant state during summer to be again planted out in the fall of the year. The beds for their reception are about eight inches deep, and composed of about equal parts of fresh loam, decayed cow manure and sand. After the plants are all set out in this composition, galvanized wires are stretched over the surface of the ground the width of the beds, and from these strings are carried to the roof of the house, the plants being so close to each other as to present the appearance of one solid mass of *Smilax*.

I next entered the Palm house, an iron structure of three hundred and fifty feet in length, filled with some of the rarest palms in the world and the finest specimens in the country, whose numerous and diversified forms and colors are beyond description and must be seen to be appreciated.

All the greenhouses have cement floors, which give them a very neat and clean appearance. They require one thousand to twelve hundred tons of coal annually to heat them.

My attention was next called to the collection of *Azaleas*, all grown as standards, and trained umbrella style, of which there were nine hundred plants, some of them having two or three varieties grafted on them. Mr. McKay prefers to grow them in a partially shaded position during the summer, and for that purpose has a building covered on all sides with laths, set about two inches apart, which break the direct rays of the sun.

The vegetable garden exhibited the same thoughtful care that everywhere characterises the place. The produce seemed to be of the best and newest kind, grown in a style far surpassing anything that has been our good fortune to gaze upon.

Hollywood Park and its various attractions will be long remembered by those who have had the good fortune to visit it, and I advise all lovers of horticulture to visit it at their very earliest opportunity, as at any time of the year it presents innumerable attractions, which, be it said to the credit of its liberal minded owner, are not kept for a selfish purpose, but with a generous and whole-soul feeling are offered to the instruction and delight of our fellow-men. And I feel assured that, to true lovers of nature, the expense of going, and the time lost, will never be regretted.

But I cannot conclude this article without saying that never before, in all my wanderings, which have extended nearly half way over the civilized world, did I receive so much courtesy as that shown me by Mr. James McKay, the skillful director at Hollywood Park, who holds a position that would baffle the best gardener in the country to fill, and Mr. Hoey is fortunate in having secured the services of such a thorough horticulturist. And as Mr. Hoey has facetiously named one of his Cactuses Rip Van Winkle, I cannot do better than wish him my friend Rip's Toast: "May he live long and prosper."

THE ALTERNANTHERA AS A LAWN PLANT.

BY M. DIGRAM.

A carpet-like effect may be produced with the *Alternanthera* on a smooth lawn in the following manner: cut strips or figures out of the turf of any shape determined on, from three to four inches deep, and in width considerably narrower than the width of the ordinary mowing machine. The object of restricting the width of the shallow pits is, that after they are occupied by the proposed plant, the hand mower may be forced over the lines or figures without falling into the sunken space and crushing its contents. The plants should be of good size when set in the ground, that the narrow space allotted them may soon be filled up. And in order to maintain a distinct outline, the *Alternanthera* should be planted near the sides of the pit, thus preventing encroachments from the grass, and at the same time admitting of free growth upwardly, and inwardly toward its centre. The earth in the pits, if of too close a character, should be removed to a depth of from six to twelve inches and replaced with a more open soil; otherwise,

the plants might be liable to injury by water remaining around them after heavy rains.

The lawn run all over with tortuous lines but a single plant in width, would furnish an attractive arrangement; or the decoration might be of spots and figures of small size, each figure or spot requiring from one to as many as six or eight plants.

In a general way, the *Alternanthera* varies considerably in color, and this variation may be made use of to greatly increase effects.

With some planning there may be several suitable styles of ornamental treatment. I have some drawings exhibiting the *Alternanthera* in the pits and the grass on either side trimmed down by the machine to an equal height. Still another section shows a band of *Alternanthera* on the lawn, and a second band forming one of a series of ribbons of foilage plants, this latter, starting from the grass line and being rounded upwards until it touches the adjoining ribbon. These suggestions are, of course, for the amateur; the professional gardener will follow his own fancy.

TWO HARDY FERNS.

BY JOSEPH MEEHAN.

The *Wissahickon* is the name of a creek which coming from the north for some distance, empties into the Schuylkill river, Philadelphia. For several miles before reaching the Schuylkill, the *Wissahickon* runs its course between rugged and high hills. These hills and the occasional stretches of low lands furnished materials for study to many of Philadelphia's older botanists, and to-day it is the home of many a rare plant which botanists delight to find.

The beautiful and very interesting *Walking Fern*, *Camptosorus rhyzophyllus* grows there, as also does the rarer *Asplenium pinnatifidum*. The older botanists and collectors, if asked for the locality of the *Walking Fern*, would name but one or two places where it could be found. It may have been with them as with many now, they feared to tell of localities where few existed, lest their favorites should become exterminated.

The writer of this, within a couple of years, has found no less than five places along the *Wissahickon* where this fern exists in tolerable abundance.

The *A. pinnatifidum* however, is not nearly so abundant. The location of the banks of the Schuylkill where Nuttall found it, still retains

the plants, and it is a pleasure to add, in some abundance.

It was lately my fortune to find it also along the Wissahickon, but the find consisted of but a single plant. As Dr. Gray states it is found there, it would be interesting if it could be known whether this single plant represents the old location, or is in a new one. For many years the Schuylkill was thought to be the only locality for this fern; but it is now found in other States besides Pennsylvania, though still considered rare.

NICOTIANA SUAVEOLENS.

BY W. L. F., HANOVER, MASS.

After reading the article in the April number of the MONTHLY, from Mrs. E., relating her experience with *Nicotiana suaveolens*, I think I can give her some light on the subject. She has evidently not had the true *N. suaveolens*, but a species of tobacco which I also have tried, much to my disappointment. Its specific name I am not sure of, but think it is *N. glauca*, a native of South America. Last summer I had the true *N. suaveolens*, which I consider a very desirable plant. I obtained the seed from Hovey & Co., Boston, and planted several together in a clump. It quite nearly answers the description which Mrs. E.'s spurious plant so falsified. I know that to be a coarse and worthless weed; but the true plant which I had in bloom all summer until killed by frost, was covered with salver formed, white flowers, something over one inch across, on a slender greenish tube, reminding one of the single white *Narcissus*, and in the evening exhaling a delicate perfume.

By referring to Bentham's *Flora Australiensis*, vol. 4, pp. 469, I think you will see that *N. suaveolens* there described is not the plant Mrs. E. had under that name, and though it sports into several varieties, none have a small greenish corolla, or otherwise answer to Mrs. E.'s description of her plant.

I should without hesitation recommend *N. suaveolens* as a very desirable addition to our list of easily grown annuals. It should be planted several together, as not enough blooms on a single plant open at once, to make it a conspicuous object.

DESTROYING WOOD LICE.

BY E. S. MILLER, WADING RIVER, N. Y.

I have been troubled with the sow bug, *Oniscus asellus*, eating plants growing in hot-beds,

mostly verbenas. They seem particularly fond of seedling verbenas and pansies. I have used tobacco dust with good results. I never heard of their eating plants before. Are they new recruits to the vast army of insects injurious to vegetation?

[The sow bug or woodlouse is not an uncommon pest to the greenhouse and hot-bed cultivator.—ED. G. M.]

EDITORIAL NOTES.

CLINTON FLOWER MARKET, NEW YORK.—From 100 to 150 wagon loads of pot flowers are emptied here every morning in the pot-flower season. Callas, Geraniums, Fuchsias, Pansies, Daisies, and Polyanthus, are the most popular. From \$5,000 to \$6,000 per day is the estimated receipts in this market for flower sales.

OUR GARDEN CHRYSANTHEMUMS.—Mr. Robert Fortune tells the *Gardener's Chronicle* that the culture of the Chrysanthemum has achieved a much higher standard in Europe than in China, notwithstanding the prevailing impression of the superiority of Chinese gardeners.

THE GARDEN.—A London paper says that "every man's happiness is just in proportion to the pride he takes in his garden."

A SOUTH CAROLINA GARDEN.—Professor Sargent writes: "I was much interested while in Charleston, South Carolina, last month to find in an old garden near the foot of Calhoun street, belonging to Mr. David Jennings, an old single red *Camellia*, the remarkable dimensions of which are worth recording. It was planted, it is said, by a Colonel Lucas in 1808, and was one of the first *Camellias* ever brought to the United States; although those brought from France by the elder Michaux, and planted by him on the Middleton Estate, near Charleston, where they are still living, I believe, are a few years older. The trunk of Mr. Jennings' plant has a circumference of 4 feet 6 inches, its branches spread 30 feet, while its height is considerably over 30 feet. Hundreds of seedling *Camellia* plants were springing up everywhere in this garden, showing that the climate of the Southern Atlantic States is perfectly suited to the *Camellia*, which is already largely cultivated there.

Near Charleston, too, 20 miles up the Ashley River, on the Drayton Estate, and just in front of Drayton Hall, stands what, so far as my ob-

servation goes, I must consider the finest tree on the continent. No tree, which I have ever seen at all equals it in strong, healthy, magnificent solidity. It looks as if it had lived a thousand years, and was good for a thousand or ten thousand more. It is a Live Oak, round topped and perfectly symmetrical, its long branches almost touching the ground at their extremities.

There are, I was told, in the same neighborhood, specimens with larger trunks even, although this one girths at 4 feet from the ground, 19 feet 10 inches; the spread of its branches being 111 feet and 122 feet. I have seen fine trees in many countries, but none which could equal this South Carolina Live Oak."

THE TRANSPLANTATION OF TREES.—The King of the Belgians has purchased a large horticultural collection at Enghien, and among the trees is a giant palm, a *Sabal umbraculifera*, which is 42 feet in height, and the crown of which is about 27 feet in diameter, the base of the trunk measuring 6 feet. This great tree has within the last few days been safely transported to the King's new winter garden at Laeken, a work of no small difficulty. The weight which had to be carried was more than 26½ tons, and the truck upon which the huge tree was laid was drawn from Enghien to Brussels by 17 horses, 21 being used from Brussels to Laeken. This has been, in all probability, the largest tree which has ever been conveyed to such a distance and transplanted. The palm had acquired a European reputation, being known as the largest in these latitudes, and the difficulties of its transport were increased by the necessity for avoiding the bridges over the canals, none of which were strong enough to bear so great a weight with safety. The King is forming in this building a remarkable and valuable collection of exotic trees, and the building is expected to be thrown open during the jubilee fêtes of the Belgian Independence during this year.

HORTICULTURAL PROGRESS.—The following extracts from the annual address of Col. Wilder at the fortieth year of the Massachusetts Agricultural Club, shows how wonderfully we have progressed. It is not often that it is permitted to one man to live to see such progress, especially one who has done so much himself to make "progress" move on:

"My friends, I have lived to see great advances and improvements in the agricultural and

horticultural world. When I commenced the cultivation of the sod, there were very few agricultural societies in our land, and not one horticultural society on our continent. Now they are spread over our country, and there are on record in the Department of Agriculture at Washington the names of fourteen hundred such associations. Fifty years ago the products of our soil were scarcely thought worthy of a place in the statistics of our industry; now our exports of these amount to nearly six hundred millions of dollars annually, and our Western granaries are treasure houses upon which the world may draw to make up their deficiencies. Then the supplies of fruits were limited to a few varieties and to a few weeks in use. Now our markets abound with fruits for all seasons of the year. Then the only strawberry in our market was the wild strawberry from the field, and for only a short time. Now we have this delicious fruit, by the facilities of transportation, for two or three months, and in such quantities that we have received from the city of Norfolk, Va., 16,000 bushels in a single season, and so great has been the interest in this fruit, that my register contains the names of more than three hundred and fifty kinds of strawberries which have been under cultivation in my day. Then there were no American grapes cultivated in our gardens, except here and there a vine of the Catawba and Isabella. Now there are nearly a hundred varieties of American grapes under cultivation in our land, and the grape may be had for six months in the year; and so extensive are our vineyards that an order for our American wines for 100,000 gallons has been recently received from Europe. Then the cultivation of the pear was limited to a few varieties. Since then the gardens of Manning, Hovey and Wilder have embraced more than 800 varieties of this noble fruit. Then no exports of fruit of any note had been made. Now Boston alone has shipped to other places half a million barrels of fruit in a year, and the export of apples from this country has amounted to nearly \$3,000,000 in a year."

AUCTION SALES.—These are held in New York every Tuesday and Friday, and are by no means confined to surplus stock. New and rare plants are often offered, and bring generally fair prices. About 50,000 pot plants a week are disposed of.

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

COOL HOUSE ORCHIDS.

BY CHAS. H. SNOW, BALTIMORE, MD.

Since writing the Orchid Articles in the GARDENER'S MONTHLY, I have received letters of enquiry on the subject of Orchids, and others requesting me to continue the articles. I hoped that some of the older Orchidists would have taken up the subject and handled it more ably than I possibly can. Without going into a detailed account of any particular species, I will give a few notes on the general culture of Orchids as particularly relates to them as amateur's flowers. After nearly twenty-five years experience with every class of plants, I find Orchids the most beautiful, wonderful, varied in form, and easiest cultivated of all plants. The odor of Orchids alone is a study. Some species, it is true, are odorless or unpleasant, but the greater part are fragrant at some time in the twenty-four hours. The high price at which Orchids are held in comparison with most other plants has been a drawback to their more extended culture, and has led too many beginners into the error of commencing with a lot of cheap, half established plants,—plants that even in the hands of an expert would be hard to save, and would only come into bloom at the end of three or four years. It is no use to expect to get up a collection of Orchids without spending some money, but at the same time the money that it would take to buy one fine oil painting would make a good start in Orchid culture, and my advice would be to any beginner to place whatever sum you decide to spend in the hands of a reliable Orchid dealer, and tell him to send you blooming plants of reliable kinds. These will give you flowers immediately. Care should be taken not to get species that bloom all at the same time.

I would say for those who are not up in Orchids, that a continuous bloom may be kept up from the beginning to the end of the year with quite a moderate collection of plants. I would here remark, that I never made the acquaintance of any one that had been successful

in cultivating a few Orchids, who did not desire to add to his collection, and there are plenty to pick from. These may be bought, also established; or they may be bought more cheaply newly imported. Starting newly imported Orchids requires considerable knowledge and patience. I have had Orchids to make blooms the first year, but it is oftener three or four years before flowers appear in fine condition. In a former article I gave directions as to the proper mode of handling newly imported Orchids, but as it is a subject of so much importance, I will state it again. Most beginners, err in keeping all Orchids too wet, and especially those that are dormant or not established. Most Orchids have bulbs, and these contain the food for the new growth until they put out roots to sustain themselves. I have seen an Orchid make fine growth for a season, depending on the old bulb for sustenance, and then when it had made a new bulb, send out roots from it. All dead roots, bulbs and leaves should be cut off, and pots used for most Orchids as small as the plant can be potted in, said pot being filled two-thirds with broken pots or charcoal. Then place them in an half shaded place, and keep the sphagnum moss just moist,—not wet,—and they must be watched, and as they start, great care should be taken that the young growth is not rotted off by water getting into it. They may stay in these pots a year, and if well grown, should be repotted into larger pots, care being taken not to break the roots, and for this purpose the pots have often to be broken in repotting, as the roots will very often be so closely attached to the pots as to make it impossible to detach without spoiling them.

Another cause of disappointment is the want of correct knowledge with regard to the countries from whence they come, also the elevation at which they are obtained. This must be apparent to any one who will take time to think on the subject. Now, it is good culture to keep all Mexican, Central American, and the greater part of the East Indian Orchids, coming from either high altitudes or latitude, pretty dry and cool from November to March,

because it is their winter. But from Brazil, if kept in anything like the heat that is found there (in Brazil), from November to March will commence to grow finely, and at this time all the Brazilian Cattleyas, Lælias, Miltonias, Epidendrums, and Zygopetalums are growing.

Those Orchids coming from 5° to 10° each side of the Equator, will, if handled properly, make two growths in the year, and the New Grenada Oncids, Odonts, and Masdevillias seem to be almost perpetual growers. Vandas, *Ærides* and *Saccolabiums* will make some growth all the winter if kept moderately moist and warm. The proper cultivation of Orchids is more a subject of knowledge than actual work. I have plants growing in the same baskets, (cedar), where they have been for six or more years, and in pots full as long, and in perfect health. It is a good plan in November to go over a collection of Orchids and put those that are to rest together, and those that are growing, or beginning to grow by themselves; otherwise the most careful person may either neglect to water some that need it, or water some too much that are dormant. A great mistake is too often made with these latter by putting them in any out of the way place, often under the shade of other plants. At no time are Orchids more benefited by plenty of light and sun than when they are dormant. It seems to solidify the bulbs, and meets a requirement in their culture. I am now referring especially to those Orchids that make pseudo bulbs. The idea that all Orchids grow in damp, shady places is a great error. I do not remember in the many times that I have been at their homes, that I saw a dozen grow in dense shaded places. They grow mostly on the trees at the edge of forests, where they get plenty of light, abundance of pure fresh air and rain in their growing season.

STEAM HEATING.

BY JOSIAH SALTER, ROCHESTER, N. Y.

(Concluded from page 133.)

Steam is not simple enough, for we cannot trust it to the care of any boy or any laboring man, who does not understand it, without the danger of the steam either condensing or exploding. Whereas an explosion of hot water pipes would be impossible. It would be merely a leak, nothing more and easily stopped. Steam has never proved effectual for horticultural pur-

poses so far as I know or have read, that I can recollect, and has always been given up wherever tried. Steam may be good for heating large dwelling houses, stores, large halls, factories, etc., but the thin glass structures built for horticultural purposes are altogether another thing. Also, "the disadvantages of steam, as a vehicle for conveying heat to hothouses are few." I hardly dare presume to question the opinions of such authorities as Mr. Loudon, but nevertheless I have opinions and ideas of my own, and think the disadvantages of steam, as compared with hot water are many.

The first disadvantage is, and it is a great one in plant growing, that after making the fire, we get no warmth at all from the pipes until the water in the steam-boiler boils. It then makes steam which heats the pipes all at once, to at least 212° Fah., which is at least 30° too hot for any heating medium for the good of the plants; and no matter how we try to modify the means of heating, by throwing the steam into large boxes of stones, etc., we cannot convey the steam any distance from the boiler without heating the pipes to at least 212°.

Another disadvantage is that if we want to leave our fire nine or ten hours through the night, and after going to bed it should burn out or burn low towards morning, the boiler ceases to make steam, the steam in the pipes is condensed at once, and we cease to get any warmth.

Now, if we should try an experiment in heating two houses, each containing the same number of cubic feet of air, both built alike and glazed alike with the same quality of glass, each house containing, say 300 feet 4-inch pipe, one for water, the other for steam and take a night when the air is still and the mercury at 32° outdoors and in-doors, with a thermometer hanging midway of each house, about four feet from the ground and equal distance from the heating medium, and start the fires both together and note the time it takes to raise the mercury to 60° in each house and the amount of coal it takes. When the mercury has stood at 60° for a short time make up both fires, so as to use the same quantity of coal in each and note the time it takes for each house to cool down to the 32° again. By such means we might come to some definite conclusion as to which is the cheaper and better means, hot water or steam.

I have no doubt the steam will raise the heat to 60° a little the soonest, although the circulation in the hot water pipes will commence the

soonest. But the difference in the time of raising the mercury to 60° by each apparatus will not exceed, I think, half an hour, while in cooling down, almost the instant the fire begins to cool down in the steam boiler the water will cease to boil, and of course the steam in the pipes is condensed at once, and there is no warmth given out except what is contained in a mere dribble of water from the condensed steam and what warmth is contained in the iron itself. Now the hotwater pipes, if there be 300 feet of 4-inch diameter, will contain about 200 gallons of water and weigh about 2000 pounds. And it must be apparent that the warmth contained in this body of water will take a longer time to be cooled down to the 32° than the same amount of steam, supposing the water to be heated to 212° the boiling point, the same as the steam.

The steam will cool down more in five minutes than the water in five hours, in a given number of cubic feet of air under like circumstances. A given bulk of water in 212° will contain more than 200 times as much heat as the same bulk of steam at 212°. These figures are, of course, only approximate, but near enough for all practical purposes. To go into exact figures would take a long time and be a great deal of trouble. We have tried the old brick flue, then steam, then hot air or polmaise; then the hot water tank and finally hot water pipes. A great deal more might be said on this subject; but at present, for cleanliness, neatness, compactness, efficiency, durability, safety and economy of fuel and labor, all would be in favor of hot water pipes, 4-inch diameter.

Of course there are many different sizes and forms of pipes, and patterns and forms of boilers, and each has its advocates; but the universal desirable source of artificial warmth for horticultural purposes, for this latitude of our country is from water, apply the heat to the water as you may think best.

And now Mr. Editor, you have made the suggestion of heating horticultural buildings by means of the waste heat of lime kilns. Perhaps it is a good idea, but I perceive you do not advocate the mode very much. We know it can be done, while the lime kilns are kept at work. The waste heat will heat the water, and the water will heat the buildings, provided all things are in proper proportion. But is it desirable? Is it to be recommended? I am inclined to think it is not. There may be times when we wish to make lime and do not desire the heated

water in the buildings, and others when we want the warmth, but cannot get the heat up quick enough. As I said before, we know it can be done; but I doubt the desirability of the means for horticultural purposes. As to the "nasty lime market" idea, that might be got over by having the kilns at some distance from the buildings to be heated, and convey the heat by an underground passage entirely out of sight to the buildings. The kilns might be hid by large clumps of shrubbery, etc., and the smoke carried off by an ornamental chimney or pagoda. And many other ways might suggest themselves.

CARNATION PETER HENDERSON.

BY W. T. BELL, FRANKLIN, PA.

A certain florist publishes in his catalogue, a caution to his customers, in regard to the above carnation, saying that it is almost worthless for the cut flower trade, by reason of losing its fresh appearance so soon after being cut.

I would like to have an expression of opinion from florists who have tested it; and ask all such to be kind enough to send me at once, a brief statement of their estimate of the variety; and I will send a report of the result of the canvas, for publication in the GARDENER'S MONTHLY. My own opinion has been favorable to the variety; but I have no interest in it, further than to discover its value to the trade.

ORCHID CULTURE.

BY WALTER GRAY, PHILADELPHIA.

In reply to Mrs. R. P., page 106, respecting the cultivation of *Cattleya Mossiae*, I have found this to succeed best in a temperature of 65° to 75° in summer to rise with sun heat, and 55° to 60° in winter when growing. It requires a good supply of water at the roots, say three times a week, when very hot and dry weather. When it requires potting it should be done in March in good fibre peat and a little live sphagnum moss with plenty of drainage; three parts fill the pot with broken pot shreds, and then place a thin layer of moss to keep the drainage clean and then fill up with the compost. Care must be taken not to break the roots.

Odontoglossum grande will do best in a cooler house, the temperature 60° to 65° in summer and 45° to 50° in winter; rise 10° with sun heat. This will do well in the same compost as *Cattleya Mossiae*; well elevate the plant above the rim of the pot and should be potted as soon as it begins to grow.

Has not Mrs. R. P. made a mistake in *Odontoglossum citrina*? I do not know of any *Odontoglossum* under that name. Does she not mean *Cattleya citrina*? If so, this should be grown upon a block of wood. Fix the plant so that the foliage is hanging downwards. In its native habit it grows upon the under branches of trees where it can hang in a downward position; it requires a good supply of water in its growing season. There are several works upon the cultivation of Orchids, the best probably is that of B. S. Williams, sold at the GARDENER'S MONTHLY office.

EUCHARIS AMAZONICA.

BY J. B., FREDERICKTON, N. B.

I see, Mr. Editor, in the April number of the MONTHLY, Mrs. E., Melrose, Mass., asks: "Will some one familiar with the culture of *Eucharis*, inform me, through the MONTHLY if it can be grown as a house plant?" Now I do not propose to teach experienced gardeners, nor assume to possess all knowledge in reference to this matter. I will not say what I can do, but what I cannot do with *Eucharis*—that is I have been trying to flower it in a cool house for the last ten years, and have failed to do so. I have also given plants to other gardeners situated about as myself, with night temperature from 45° to 55°, with 5° or 10° higher by day. Some of these gardeners have said how easy it was to flower, and what little trouble they had with it at some Lords or Dukes in England or Scotland; but out of five or six here in Frederickton, N. B., who have each one or more plants of *Eucharis*, and have had them the last eight years, some of them, but no flowers to my knowledge. Some three years ago my employer had quite a large pot full of strong bulbs; I divided them, and put three in an 8-inch pot, and thought I should have had quite a success; but alas, like the barren fig tree, nothing but leaves. But there is one gentleman here who grows them like potatoes; the answer is, he gives them plenty of heat. I understand it grows in Brazil or South America, so that it is at home in a moist humid atmosphere, say from 60° to 70° night, with 5° or 10° higher by day.

Having access to most of the greenhouses here I have an opportunity of seeing what is in bloom. I find in the hothouse of H. Ray,—a subscriber to the MONTHLY—go when I will, spring, summer, fall or winter, there are more or less *Eucharis* in bloom, and the leaves are black with

richness, so that I have come to the conclusion it is no use bothering with *Eucharis* if you cannot give it a good moist heat, or a congenial temperature; this is my simple opinion based upon experience.

FORCING LILIES.

BY EDWIN C. ELLET, GERMANTOWN, PHILA.

I submit to your consideration the following concerning *Lilium candidum* and *L. longiflorum*. In reply to S. F. T., of Saratoga Springs, I would state that we have grown *Lilium candidum* and *L. longiflorum* very successfully in the following manner. On the 15th of August we placed the bulbs in soil composed of two parts good loam, one part well-rotted manure, and one part bar sand; as they seem to like good drainage it would be well to place some screenings in the bottom of the pots. We placed them in an open frame till Oct. 30th, and then put them in a house with slow heat. The bulbs first begin to sprout Nov. 28th. After Dec. 1st, we raised the heat to about 100° in the day time, and 80° at night. The first flower opened Feb. 8th. After this date they flower slowly at first, but the bulk of them come in a short time before Easter, until which time they may be kept.

EUCHARIS AMAZONICA.

BY WALTER GRAY.

In reply to the inquires of Mrs. E., respecting the culture of *Eucharis Amazonica* as a house plant, from my experience I would say that it is a plant not suitable for that purpose. To flower this plant well it requires judicious treatment. It should be grown in a hothouse until well established, in good peat and loam in equal parts, with one-third of coarse sand well mixed together. When growing should have abundance of water and weak manure water once a week. After making its growth it should be removed to a cool greenhouse for about eight weeks, during which time but little water should be given, and then brought back into the hothouse and treated as before.

This plant is subject to mealy bug, thrip, etc. To keep this pest down use the syringe freely and wash the leaves with weak whale oil soap water. I have seen fine large plants standing in hothouses for several years which for the want of a resting season do not flower well. Good established plants can be brought into flower three times in a year. Where several good

plants are grown by the different treatment, they can be had in flower at all seasons of the year. This plant is largely used in the London market for cut bloom, and the market growers get good successions of flowers by growing and resting these plants accordingly.

EDITORIAL NOTES.

ORCHIDS AT PUBLIC SALE.—The fine collection of Mr. Geo. Tweddle, of Albany, New York, was sold in New York at public sale on April 30th.

FUCHSIA EARL OF BEACONSFIELD.—For the information of a correspondent of the American GARDENER'S MONTHLY—who asks in what year this Fuchsia was raised, and who was its raiser?—we may state that it was raised some seven or eight years ago at the Forest Hill nursery of Messrs. John Laing & Co. Mr. Laing fertilized flowers of the old Fuchsia fulgens with the pollen of some of the best florists' varieties of that day, and in due time raised about a hundred seedling plants, amongst which were some very curious things—which were subsequently thrown away—and the subject of this note, which was certificated by the Royal Botanic Society on June 21, 1876, under the name of Laing's Hybrid, and again in July of the following year by the Floral Committee, under the name it now bears. It is undoubtedly one

of the most beautiful and most useful decorative varieties that we have, but it has one fault, and a very curious one—it will not bear seeds.—*Gardeners Chronicle.*

SCRAPS AND QUERIES

SALVIAS.—P. says: "On page 87, March number of the MONTHLY, I notice that Mr. Hovey says that the blue *Salvia splendens* is truly blue, and that it originated with him, while Mr. Henderson, page 42, Feb. MONTHLY says that it is "a coarse growing weed-like plant, far from splendid." It may be possible that Mr. Henderson has got the wrong plant. Let us hear from some of your readers. Will some of the readers please give me a description of *Salvia Heeri*?"

EARTHEN FLOWER POTS.—"A Subscriber" says: "Some two or three years ago I read an article in the *Scientific American* of an invention to make flower pots with a composition of loam, peat and other mixtures, to be used principally for bedding out plants, plant and pot being put out in the ground where it acted as food for the plant, and could be made by any ordinary workman; would be glad to learn through the MONTHLY if you or any of its readers could give any further information of how they are made, or if a recipe for making could be purchased, and where."

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Much of the success of the fruit grower comes from his ability to foresee consequences. The quick-eyed fellow sees at once when something is going wrong, and does not wait till the tree is dead to find out what is the matter. Perhaps the tree has made but three or four inches of growth when it should have made, as he well knows from experience, six or eight; or as it shows a tendency to mature leaves some weeks before the proper time. He examines the bark and finds it does not grow as freely as it ought

to do. Instead of a glossy green, it is brown and dryish. Perhaps he finds that some fungus has partly girdled a branch, or a borer has entered it,—or that some accident has affected the root; and at once he proceeds to well understood rules of remedy. Again there may be a yellow tint not usual in the leaves, and generally this comes from root injuries either from insects or fungoid attacks, or perhaps borers. At any rate, the closest attention is required to look out for possible injuries in time to remedy. As fruits mature, birds will be found an awful pest. It is little comfort to a fruit grower to

be told that the birds live on insects in early spring, if they take all your summer fruits in return. In European countries, where birds abound to a greater extent than with us, they find it profitable to cover cherry and other trees with cheap fishing nets. In very large orchards, both there and here, there is little necessity for this, as there is enough to spare for the birds and the orchardist too. Boys are sometimes employed with clackers to make a noise and drive them away; but this would not probably scare an American bird. We once saw this plan tried at Rochester, New York, and noted that while the boy would be stooping to find stones, the robin would cut in, steal the cherries and be off again before the boy could send the stone after him, and seemed rather pleased with the exciting sport.

Peas for a fall crop may be sown. It is, however, useless to try them unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England where the atmosphere is so much more humid than ours, they nevertheless have great difficulty in getting fall Peas to go through free from mildew; and to obviate these drying and mildew-producing influences, they often plant them in deep trenches, made as for Celery, and are then much more successful with them.

Cabbage and Brocoli may still be set out for fall crops, also requiring an abundance of manure to insure much success. Lettuce, where salads are much in request, may yet be sown. The Curled Indian is a favorite summer kind; but the varieties of Cos, or plain-leaved kinds are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

At the end of June, some Celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor. Some of our best growers now plant entirely on the surface, and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Beans produce an enormous crop in deeply trenched soils, and are improved as much as any crop by surface manuring. We hope this method

of fertilizing the soil will be extensively adopted for garden crops this season. Those who have not yet tried it will be surprised at the economy and beneficial results of the practice.

Cucumbers for pickling may be sown this month, and endive for fall salad set out. Parsley for winter use may be sown now, in boxes of rich soil, and set in a cool shady place till it germinates.

Asparagus beds should not be cut off after the stalks seem to come up weak, or there will be but a poor crop the next season, and the beds will "run out" in a few years.

Tomatoes, after trying all kinds of trellises recommended, will be found to do best on stakes tied up singly. It is best to plant a strong pole as for Lima Beans, with the plants when first set out, and tie up as they grow. Marketmen generally let them grow as they will, on the ground, which perhaps, although not yielding as much, costs less labor, and may thus be most profitable.

The Swede Turnip or Ruta Baga should be sown about the end of the month. A well enriched piece of ground is essential, as by growing fast they get ahead of the ravages of the fly. Manures abounding in the phosphates—bone-dust, for instance,—are superior for the Turnip.

Sweet Potatoes must be watched, that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and with a rake or pole, the vines disturbed somewhat from their position.

Herbs for drying for future use, should be cut just about the time they are coming into flower. Dry them in the shade, and after sufficiently dry to put away, tie them in bunches, and hang in a cool shed, or place them loosely between the paper, and stow away in cupboards or drawers,—the last mode is by far the cleanest and most approved plan with the best housekeepers. Some, indeed, powder the leaves at once after drying, and put them away in bags, ready for use.

COMMUNICATIONS.

BEURRE CLAIRCEAU.

BY GEN'L WM. H. NOBLE, BRIDGEPORT, CONN.

The April MONTHLY says: "This pear is voted in the United States not fit for any month." This I think means in Philadelphia and special localities. Elsewhere it turns out not only a

surely "handsome pear," but "voted" at its season about as good as any. The ballots are cast by those who know pears.

Some one near Worcester, Mass., knows how to raise them and to ripen up their painted glories. He supplies them largely to the New York market. We have them in our fruit shops, and they are sought in the holidays not only for their good and tempting looks, but because they are good eating.

Many pears suffer like ill name, which either other localities or better care present as luscious fruits. Not long since, a rural paper sat down on the Bartlett as an antiquated, out-of-date fruit, which better new kinds were driving out of culture. When they succeed in that Bartlett exodus, the pear market will be stocked. Antiquity will have a large representation. There are more Bartletts planted hereabouts than of all other kinds. You may say they are not good, that there are lots better, etc., but the masses stick to the Bartlett; and a good part of those "select" who know pears largely prefer them. I don't, but such are in my household.

Now not only some localities refuse to a pear the excellence which other soils yield, but goodness and tameness are both often due to the way you grow and the way you handle fruits. Some pears in heavy or sparse bearing cases, picked green, or ripened on the tree, always come to the front in fair and passable condition; but others you have to grow and pick and care for rightly to bring out their full merit. Of such are two of our largest and very good pears, the Clairgeau and the Vicar. I never saw a small pear of either worth a cent. I never saw a big one of either kind well ripened that was not a joy forever. I do not doubt that the Clairgeau may have its favorite climate and footings; but I know that its Worcester grown and ripened fruits, large and glowing with beauty, have richness inside of their gaudy coloring. Of the soil, of their home, or of the exact method of their growing or handling, I know nothing, but I do know that they fill the bill of a fine eating pear. Just so with the Vicar (by no means as attractive in looks as the B. Clairgeau) when you get it large, full grown, picked pretty late and well handled so as not to wilt. It well merits what some pomologists of wide experience say, that "if they could have but one pear they would have the Vicar." Yet I have seen loads of it that were fit only for the cattle or the pigs, small, astringent, never gaining buttery flesh

or tempting flavor. Now the moral of this is: Decree not banishment to the Beurre Clairgeau, till you get in all the votes.

BEURRE CLAIRGEAU PEAR.

BY A. C. L., MADISON, IND.

In the last number of your journal some one bears down heavily on the Beurre Clairgeau Pear. For the past ten or fifteen years I have grown and ripened perfectly, as delicious pears from the Beurre Clairgeau trees, as we ever gathered. For one or two seasons I had much the same impression concerning the variety, as your correspondent, but I had made up my mind that so handsome a pear as that must have a better future. First of all, the tree should have no manure placed at its roots after it begins to bear fruit. A top dressing of bone meal (ground bones) mixed with some leaf mould, three or four pounds of bone meal to a tree twelve years old, and dug in in the Spring. In October when the fruit begins to fall, all of it must be carefully gathered and put in a basket for three or four days, and then picked over. Now have a box lined, or double-lined with blankets. Into this place the pears and cover them completely with the blankets; put on the cover just as close as possible. It is better to have a large box, say three feet long, two feet wide, and two feet deep, and this lined with blankets or old comforts, or anything that will keep the air out. I make use of an old improvised ice chest, made for the purpose of transporting prairie chickens shot in August, on the prairies, in years past. Into this were packed the chickens with alternate layers of ice and birds. It has carried thousands, and not one spoiled, and now it is just as useful in ripening fruits. Pack the fruit in small boxes, 15x20 inches, as close as possible, and lined with something. Into the larger box place the smaller ones, there to remain ten days or two weeks. Then examine to see that all is right. The ripening can be hastened or retarded by placing the box in a warm or cool place. The best place is a cool dry room. When they are ripe, it is a sight that would make Mr. Field's eyes sparkle with pleasure, for every color is brought out to perfection, and the flavor can scarcely be surpassed. The Beurre Bosc ripened in this manner, is almost equal to the Seckel or Tyson. Let any one try this plan; there is

nothing new about it, and if he be not fully compensated, I will agree to pay for all expense and trouble.

POTATOES AND MELONS.

BY RUSTICUS, LEXINGTON, KY.

In your May number you allude to those who grumble at the anticipated "fearful crop of potato weeds." I am not of that party. I welcome the volunteers. My experience has been that they excel the spring planting, and that, too, without special culture. If the "grumblers" would select a moist time and carefully transplant them to a spot where they can be regularly cultivated, my word for it the so-called potato weeds will give a good report of themselves. It is better to let them remain where they spring up, if it can be so arranged, for then there will be no check to the plant. By preserving my potato weeds I have eclipsed my friends in early potatoes, making them stare when I spoke of my ripe ones. Depend upon it, nature does not work in vain. We should study her more closely and learn her ways. To change the application, "her ways are ways of pleasantness and all her paths are peace." I am petting some vigorous ones now, and expect to dig them the very first. In places they will grow up too thick, too many vines in one hill. Thin out judiciously or you will have a mass of marbles. Plant deep in the fall and mulch heavily, and you will breakfast off your "Smiling Murphys" before it is time to do your spring planting; the tubers forming beneath the surface without tops first appearing; on the same principle that minute potatoes grow from those in the potato pile secured for the winter. Lying in the ground separately is more favorable for a larger formation. If you will pardon me, Mr. Editor, for a very abrupt changing of the subject, I would say a word on melon culture, suggested by a novel method of cultivation promulgated by a certain seed-house not a thousand miles from you, as I regard it. It is to plow the musk melon after the vines will not admit of running the cultivator, the plowing to be as for corn. I should as soon think of putting a plow in an advanced melon patch as a bull in a china shop. Melon roots run out the exact length of the vine. These should not be disturbed, for they are feeders for the plant. Hills seven feet apart, according to these same directions, would soon utterly exclude a plow, for the vines rapidly commingle that distance if in properly prepared

ground. I do not say it would be too close. Raise the vines gingerly from time to time to keep them from rooting, as you would a sweet potato vine. This rooting habit is not favorable to the fruit, robs it of nourishment. The same directions, thin to one plant at the final thinning. Let three of the most thrifty stand; at all events two. Plow in green oats or other stubble in the fall, deep, and as lumpy as possible. Spread thoroughly rolled manure in the spring, double harrow and roll. Mark off, dig holes a foot deep, cover the bottom with pasty manure, fill in with finely pulverized dirt, hill up a moderate size, plant your seed not very deep, an inch, and pat down the surface,—be sure of that; keep the ground loose and light; exterminate every weed; fight them like grim death; nip back and prune out. There will be useless vines springing from the crown of the plant. They are only thieves, abstracting more than they give. Keep the earth drawn up to the head of the vines. Pull off some fruit when yet very thick. Don't take off the fruit for use until it almost drops off of itself.

EDITORIAL NOTES.

AMERICAN POMOLOGICAL SOCIETY.—Report on new fruits examined during the session of the American Pomological Society at Rochester, N. Y., September 18th and 19th, 1879.

PEACHES.

Forty-four Seedlings, originated by J. D. Husted, Lowell, Kent Co., Michigan, from cross of Hill's Chili upon Hale's Early in 1875. They are in season between Hale's Early and Crawford's Early, and are all of good quality. The majority are either reproductions or slightly modified forms of Hill's Chili.

Wheatland.—From David Rogers, Wheatland, N. Y. Very large, yellow, resembles Crawford's Late.

Mrs. Brett.—From J. H. Ricketts, Newburg, N. Y. Large, white with red cheek, very juicy, sub acid, very good.

GRAPES.

Lady Washington.—Originated by J. H. Ricketts, Newburg, N. Y. A cross between the Concord and Allen's Hybrid. Bunch very large, compact, shouldered; berry medium to large, deep yellow, pink where exposed to the sun; flesh tender, juicy and sweet, and very good. Vine vigorous, hardy and productive; leaves large and thick. Promising for the market and the amateur.

Jefferson.—Also from Mr. Ricketts. A cross between Concord and Iona. First fruited in 1874. Bunch large, not very compact. Berry of medium size, deep pink, very vinous. Quality best. A showy variety. Foliage of *Labrusca* type.

Bacchus.—From the same grower and origin. An accidental seedling of Clinton. Bunch medium; berry medium, blue black, very vinous, and promising as a wine grape. Foliage of *cordifolia* type.

Naomi.—From the same grower. A cross between Clinton and Muscat Hamburg. Bunch large, loose; berry medium size, green tinged with bronze. Very juicy and high flavored. Quality best. Foliage of *Labrusca* type.

No. 1, *B*.—From the same grower. A cross between Hartford Prolific and Clinton. First fruited in 1877. Bunch large, cylindrical; berry medium, white, good. Foliage *Labrusca*.

No. 254.—From the same grower. A cross between Martha and Sultana. First fruited in 1874. Bunch large; berry small, yellow, very juicy and high flavored; seedless. Quality best. Foliage of *vinifera* type. Vine vigorous, but only half hardy.

Noah.—Originated by Mr. Wasserzieher, at Nauvoo, Illinois. A seedling of Taylor, first fruited in 1876. Bunch medium, compact; berry medium, yellowish green; resembles *Elvira*, but hardly equal to it in quality. It gives promise of value as a wine grape.

Dutchess, (named from Dutchess County).—Originated at Poughkeepsie, N. Y., in 1868. A hybrid between a White Concord Seedling and Walter. Bunch large; berry above medium size, greenish white, flesh breaking, very juicy, vinous; quality very good.

Poughkeepsie Red.—Of the same origin as the preceding. A hybrid of Walter and Iona. Bunch medium, compact, shouldered. Berry medium, pale red, vinous, sweet. Resembles Delaware and of equal quality. The foliage resembles Delaware.

Rochester.—Originated with Ellwanger & Barry, Rochester, N. Y. An accidental seedling. Bunch large, compact, shouldered. Berry above medium size, reddish amber, very juicy and of good quality. Vine hardy and very prolific. The foliage resembles Delaware.

Monroe.—Of the same origin as the preceding. Bunch medium, compact. Berry large, blue black, sub acid, vinous; quality good. Vine hardy and vigorous.

Niagara.—Originated by Messrs. Hoag & Clark, Lockport, N. Y. First fruited in 1872. A cross between Concord and Cassady. Bunch large, compact, shouldered. Berry large yellowish white. Flesh sweet and juicy. Quality good. Foliage large, lobed, very pubescent. Matures with Hartford.

Pocklington.—Originated by John Pocklington, Sandy Hill, Washington Co., N. Y. A seedling of Concord. Bunch very large, shouldered, compact, berry very large, yellowish white. Flesh pulpy, juicy and vinous; quality hardly good, but the specimens were not fully ripe. Two of the members of the Committee, Dr. Burnet and Mr. Bateham, stated that they had seen the fruit in finer condition. A very showy fruit. Foliage very large and pubescent.

Hybrid Seedling.—From Dr. W. A. M. Colbert, Newburg, N. Y. A cross between Iona and Muscat Hamburg. Bunch large, berry large, purplish black; pulp dissolving; quality very good.

Lavega.—A hybrid seedling. From W. H. Mills, Hamilton, Ontario. Bunch medium; berry large, reddish, vinous; quality very good, vine hardy.

Seedling No. 3.—From William Hawkins, Hamilton, Ontario. Bunch and berry large, white, vinous and high flavored; quality best. A hybrid, vine hardy.

Seedling No. 10.—From the same grower. Bunch and berry small, white, very sweet; skin tough; quality very good, vine hardy.

Burnet.—From P. C. Dempsey, Albany, Ontario. A cross between Black Hamburg and Concord. Bunch large, loose, berry large, purplish, vinous, very juicy, very good, vine hardy.

Seedling No. 60.—From the same grower. White, vinous, very good. A hybrid. Hardy.

Hybrid Seedlings.—From C. J. Copley, Stapleton, N. Y.

18 *F*.—Berry very large, black, good, *labrusca* foliage.

14 *F*.—Bunch large, compact; berry large, greenish white, lacks flavor, but may be better in a good season.

Twenty-one Seedlings.—From W. G. Hulker-son & Co., Oriel, Michigan. These originated from a single bunch of Wilder (Rogers No. 4,) and show considerable variation in size and color of berries, ranging from deep blue black to red. While none are improvements upon the parent, the results are such that future ex-

periments in this line should be continued and encouraged.

Prentiss.—Origin J. W. Prentiss, Pultney, Steuben Co., N. Y.; is a seedling of *Isabella*. Bunch medium, compact; berry medium, yellowish green; skin thick; flesh pulpy, but quite dissolving, juicy, sweet, with some flavor. Quality good to very good. Belongs to the *Labrusca* type. Ripens with Concord and keeps well. Vine is very hardy and very prolific. A promising white grape.

Numerous other specimens of new varieties of grapes were examined, but being either inferior in quality or in an unsound condition they are not mentioned in this report.

LEMON.

Olivia.—From George C. Swan, San Diego, California. Specimens very large and of fine appearance, and said to contain 65° of citric acid. The Committee not having any means to test these fruits, can only commend the sender for his interest manifested in the progress of horticultural products.

P. J. BERCKMANS,
SAMUEL HAPE,
SYLVESTER JOHNSON,
ROBERT BURNET,
M. B. BATEHAM, } Committee.

WATERLOO PEACH.—Ellwanger & Barry's Catalogue contains a beautiful colored plate of this variety.

RAFFIA FIBRE.—It is not clear what plant this tying material, recently noticed in our columns, is obtained from. In a recent number of the *American Agriculturist*, Prof. Geo. Thurber offers the following opinion:

"We take this to be derived from the stem of a species of *Cyperus* closely related to the *Papyrus* plant, and the same material as that from which the much esteemed India mats are made. The *Raffia* splits into the smallest fibres; it unites great strength with a silky softness and pliability, and for budding seems to be a most perfect tying material."

JUNE BUDDING FRUIT TREES.—At a recent meeting of the Texas Pomological Society, Mr. Nimon read a very instructive paper upon the subject of peach-budding, giving the results of an experience of fifteen years. Mr. Nimon's report is decidedly in favor of June budding and upon stocks of the present year's growth. He reported having budded last season fourteen hundred stocks in June, with little if any loss,

and twenty-five hundred stocks in August with a loss of about 80 per cent.

THE ELECTRIC LIGHT.—The English papers are filled with accounts of the growth of plants by the electric light. Much difficulty has been found in forcing flowers and fruits in that country from the long, dark winter days. By the electric light much of this difficulty may be overcome. In some cases, the flowers of the common *Calla* have been grown double the size when under the influence of the electric light. Under our bright winter skies we have not the same use for the electric light.

SCRAPS AND QUERIES

APHIS ON STRAWBERRY ROOTS.—D. H. Cynthiana, Ky., reports that a large aphid at the roots of strawberry plants is very destructive. He seeks a remedy. So far as we know, it is not troublesome in these parts, and therefore no experience has been had with remedies. But where a few plants are worth preserving, it might be worth while to try Paris green or London purple, as these seem to be destructive to all insect life, and do not injure vegetation.

SCHUMAKER PEACH.—J. W. B., Fresno, Cal., asks: "What is the Schumaker Peach?" but we can tell nothing more of it than has been already noted in our magazine.

HYBRIDIZING STRAWBERRIES.—J. G. B., Princeton, Ill., writes: "I am trying in a small way to hybridize strawberries, raspberries and blackberries, and of course there are difficulties to the uninitiated, and it occurred to me that you being high in authority in such matters, would therefore be a proper person to apply to for information. If any information in book form is accessible to the public on hybridizing will you please inform me if you know of any?"

[There is no work that we know of,—and indeed hybridizing is such a simple affair, when understood, that it is hardly worth while to write a work about. Those who know anything of the structure of a flower know that the organs in the centre are the pistils, and that the powder capped organs around them are the stamens. In hybridization, this powdery substance,—the pollen as it is called,—must be taken from the flower of one variety and placed on the pistil of another,—and before it has received pollen from its own stamens. To insure

this latter point the anthers or pollen-bearing organs are cut off before they are mature, it being sometimes necessary to part the petals before they naturally expand, in order to do it. The pistil is not always ready for fertilization till a day or two after the flower expands. It is the custom with hybridizers to put some pollen on the apex of the pistil, at once when the anthers are taken off, as pollen retains its vitality for a long while, but in order to be certain that hybridization is effected, more pollen is put on a day or so afterwards, and very often the flower fertilized with foreign pollen is placed under a gauze bag to keep off insects which might bring pollen from flowers not desirable.

RASPBERRY BORER.—R. J. S., Philadelphia.

The specimens of Hornet sent are infested with the raspberry borer. This is the chief cause of the degeneracy of varieties. A new form comes out and for a while is popular, till the borer finds it out. It is then weakened by the insect, and being weak, is easily killed by the Winter, after which it is pronounced "not hardy." There seems to be no remedy but to examine one's plants occasionally, and when traces of the insect's existence are found, dig up and burn the whole plantation in the Fall of the year, and set out new canes the following Spring. And above all, one should examine all purchased plants on receipt, and if infested with borers, refuse to receive them. A vigorous policy is required to keep down this pest.

FORESTRY.

COMMUNICATIONS.

CENTRAL CALIFORNIA FORESTRY.

BY T. C. PRICE, FRESNO CITY, CAL.

The idea of planting forest trees is steadily gaining ground, especially in Fresno, Tulare, and Mariposa Counties. The timber principally planted here is Blue Gum, (*Eucalyptus globulus*) and Locust; however, there is more of the former than the latter. The constructing of irrigating canals has wrought a revolution in agriculture in this section, and as the facilities for irrigation have increased there has been a corresponding increase in tree-planting. In a few years the vast plains, which have been heretofore comparatively treeless, will afford timber for fuel and lumber to succeeding generations.

EDITORIAL NOTES.

FOREST FIRES.—We have always contended that the only way to make timber culture a permanent success, was not to keep before the public mere sentimental notions regarding it, or to pick out all the rosy scenes about forestry, and let people get out of difficulties as best they may; but rather to seek ourselves what difficulties there may be, and look for remedies. And among the difficulties we must not lose sight of the chance of forest fires, a difficulty we have

often alluded to. This trouble is brought more particularly before us, this season of terrible disasters from forest fires. For a month we have been writing in an atmosphere of dense smoke from forest fires all around within a circle of four or five hundred miles wide. Thousands on thousands of acres have been destroyed by the fire fiend; and amongst these, forests belonging to some who have been strongly tempted to embark largely in artificial forest culture, but which temptation they will be now most likely to resist. When alluding to the present aspects of the forestry question in a paper for the *Penn Monthly*, some three years ago, the writer of this pointed out, that some system of forestry insurance would have to be inaugurated before much capital would be invested in it; and we present this point more strongly now. Of course Forestry insurance would have to be on a very different basis from any other class of insurance, —and would have to be made on a broad national basis. But it surely can be done,—and if those who are spending so much time on bewailing the fate of forestry some hundred years or so to come, when there shall be no more timber, would give just a little to these practical questions, they would do at least as much service.

FORESTRY CENSUS.—Prof. Sargent has issued a descriptive list of all the forest trees of the United States, with blank leaves to each page for those who know of new facts to note and report.

SCRAPS AND QUERIES.

CATALPA WOOD.—G. M. F., Henderson, Ky., writes: "I sowed, recently, a considerable quantity of Catalpa seeds for timber, and now I am told that there are two kinds, the White and the Yellow Catalpa, and that the white is of little value for durability. Can you tell me anything about this, as it would be very unfortunate for me, after waiting a number of years, to find I had made a mistake? I have read Mr. Barney's pamphlet, and I cannot learn from that that there is any difference in the durability of the timber of either kind, only that the one is more hardy than the other. That there is a difference in the durability of the two kinds of timber I believe. The timber known here as the White Catalpa is not so durable as the yellow, but, so far as I have been able to judge, the white and yellow timber are all from the same kind,—the white being from the younger and the yellow from older trees."

[We cannot say. The whole Catalpa question has been so mixed through the reckless statements of enthusiasts that it is difficult for the cool-headed investigator to understand the exact merits of the two varieties. For ourselves, we have become so puzzled that we have had to leave the whole matter to time to unravel. If what our correspondent supposes about the difference between the white and yellow wooded Catalpa be correct, it will be a fact against the supposed merits of the *C. speciosa*, as the eastern form is a very dark brown. We never saw any Catalpa wood that could be called "white," except the two outer annual rings of wood. Moreover, almost all of the facts in regard to

the wonderful durability of Catalpa timber have been derived from experience with the eastern form. Rafinesque, over sixty years ago, refers to the then long known reputation for durability of Catalpa timber,—and this was before civilization had scarcely penetrated a forest beyond the Ohio River. Near where we write is a "Yellow" Catalpa timber gate-post, that, we have been informed, is some fifty years old. Our correspondent will thus see that we shall have to determine which species is the "yellow" and which is the "white," or whether the same kind will be sometimes white or sometimes yellow, before we can correctly answer his questions.—ED. G. M.]

GROWTH OF TIMBER.—C. B. P., Albany, Ills., writes: "I have just been looking over THE GARDENER'S MONTHLY, for September, 1877, and noticed a note on the rapid growth of hickory, and I send you a little of my experience. I planted some fine,—what we here call Mississippi—hickory nuts, six years ago last fall, and they have grown from 6 to 16 inches in that time; also planted seeds of sugar maple five years ago, and they have grown 10 to 18 inches. Black walnut makes an average with me of 2 feet per annum, and in nine years a diameter of 7 inches."

[Our correspondent probably means that the hickory and sugar-maple have grown the height he says so much a year average in that time, for surely it would be very exceptional for either of these trees, but especially the maple, to make only eighteen inches of absolute growth in five years. But the walnut is a well-known rapid grower even in its earliest stages of seedling life.—ED. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

EXTRACT FROM MY NOTE BOOK.

BY REDWOOD CALEHOPPER, WILMINGTON, DEL.

Before setting out on the little jaunt up the Brandywine creek, I came upon a Paper Mulberry overhanging a fence at the Corner of 13th and King streets. This mulberry, like one

which I had previously described in the GARDENERS' MONTHLY, had sent out roots from the new wood formed along an opening in the tree's side. The opening in this latter case had doubtless once been completely filled with brown or black decayed wood, but a portion of this having been knocked or weather-washed away, one or two large roots starting from a point about eight feet above the ground were

brought into view. These roots were an inch and a half in thickness.

In the published description of a similar case above mentioned, I expressed an uncertainty as to whether the roots and rootlets filling the decayed wood, were from the entire inner surface surrounding said decayed wood, or only from the new wood on the margins of the opening. Tree number two made this point clear,—the roots were the product of the new wood only. A second break in the side of this tree, where a large branch diverged from the trunk seemingly caused by insufficient support below, gave rise to another peculiar formation. Here the marginal new wood crossed from one side of the break to the other, forming a sort of Siamese-twins' union of the two sides. Above this cord of union, and quite within the break, a stout twig had grown from a surface of new wood which was beyond the root-developing action of the black, heat-absorbing decayed wood. This tree also furnished an instance of the new wood continuing to grow laterally until it formed a circle in section, and breaking away on both sides, became as far below as its junction with the main trunk, a self-supporting lesser trunk. Query: Why is this tendency of rooting from the new wood a peculiarity of *Broussonetia papyrifera*? My supposition is, that it is the complete decay that occurs within, together with the dark, almost black color of this decayed wood which gives it thus the stimulating properties of rich earth.

FERNS OF SOUTHERN CALIFORNIA.

BY S. B. PARISH, SAN BERNARDINO, CAL.

The southernmost part of California possesses a great diversity of climate. There are low hills whose sunny recesses are unvisited by frost, and mountain peaks 12,000 feet high, whose summits are white with snow till late in the summer. The waters which descend from the western slope of these mountains find their way through steep and wooded cañons, abounding in water-falls, to fertile valleys; on the eastern side the scanty streams wind through barren hills, and hardly reach the edge of the thirsty desert whose lowest part is 70 feet beneath the sea level.

These varied conditions of heat and cold, of moisture and dryness, favor the production of a widely varied flora, extending from the pine and the oak to the palm, the agave and the

cactus. From the same causes, there are to be found grouped together in the same natural order, plants which require very different conditions for their growth, as is well seen in the great number and variety of the native ferns. In rapidly passing these in review, it is not proposed to enter into any scientific description, but mainly to give a few notes concerning their manner and places of growth, and their general appearance. If we enter one of the many ravines, or cañons which cut the mountain sides, we soon see some sunny or half shaded bank thinly covered with the common brake, *Pteris aquilina*, var. *lanuginosa*; but even higher up in the mountains it does not show the size and luxuriance it attains in more northern climates. On dryer and poorer soil are found the scattered tufts of the Bird Rock-brake, (*Pellaea ornithopus*), its roots often hidden under a stone or sheltered by the heath-like chimizo bushes, but its stiff fronds thrust out to the sunshine. While young it is graceful, and of a soft glaucous green, but it is soon scorched to a dull olive color, and to a rigidity not at all in accordance with the grace looked for in a fern. Higher up in the hills there is to be found in a few places the rare *Pellaea Wrightiana*, so like in appearance to the Bird Rock-brake that a close examination is needed to detect the botanical characters which distinguish them. It has, perhaps, a somewhat more elegant appearance than its commoner relative, as it stands shouldering up against a half-buried boulder, and looking like a bunch of little dingy pine twigs. Both of these ferns when cultivated in the shade, acquire a brighter color, and a more graceful manner of growth than they have in their native homes. But before going so high up, let us look for a handsomer member of this genus, *Pellaea andromedæfolia*. It is to be sought in places partially shaded and not entirely dry, although it is by no means notional, and will grow under almost any conditions. In cultivation it is very satisfactory, doing well either in the house, or out in the sun among the smaller border plants. Its few long and branching fronds are gracefully curved, or, in the shade, drooping, and the small ovate pinnules, although thick in texture, are of a pleasing green, or sometimes of quite a bright purple. Growing in the same places, is the California Polypod, *Polypodium Californicum*, its single deeply pinnatifid frond illuminated on the back with rows of bright golden fruit dots. It is a winter grower, shoot-

ing up with wonderful rapidity after the first rains, and withering when the moisture fails in the Summer. It is a very easy and good fern for house cultivation. In the same places, but loving a little more sunshine, is seen the *Gymnogramme triangularis*, its polished brown stipes supporting handsome triangular fronds, the backs of which are covered with the bright yellow powder from which it gets its name of Gold Fern. Nearer the coast, and on the edge of the desert, they are found coated with a shining white powder, and are then called Silver Ferns, but botanists do not recognize them as distinct varieties.

(To be continued.)

NOTES FROM WASHINGTON TERRITORY.

BY FANNY E. BRIGGS.

Another year has brought us little additional knowledge of the country and its climate, except as to its capacity for storms. The winter had been unusually cold and stormy, and cold rains continued with little intermission until July, and interfered unusually with haying and harvest. With brief intervals of pleasant weather, the autumn was very wet, and early in December the rain changed to snow. On the night of December 24th, the mercury stood at three degrees above zero, the coldest night in many years. On the 9th of January there was a terrible wind storm, continuing four or five hours. At the very beginning of the storm, a tree fell upon a school-house only two miles distant, killing two children instantly and injuring almost every one in the house, some severely. Great masses of trees were felled, filling roads, cumbering fields, and destroying fences, buildings and stock.

On February 18th, we had nearly two feet of very solid snow. March opened quite pleasantly, but on the 16th nearly a foot of snow fell, and to-day, March 28th, the ground is white again. So much for the "semi-tropical climate" of which we heard such flattering accounts.

This can never be a land of gay and smiling landscapes while its native features remain. The ever-present firs, so dark and sombre in the cloudy day, light up, it is true, in the sunshine, and take on altogether a different aspect; but it is only a mild and pensive gladness, and in autumn there is only here and there a glimpse of brightness where a dog-wood or vine-maple hangs out its purple or scarlet banner. The grand snow-peaks, Hood, St. Helens, Adams and

Ranier, are the glory of the land, and a sight of them is always inspiring.

As the Indian question is now a prominent one, perhaps a few personal observations may not be amiss. The Indians we saw in California were all, I suppose, of those known as Diggers. They worked a little, stole what they could, and lived in the poorest and wretchedest way. With a friend I visited one of their camps. It was built on a hill-side, sloping steeply to a considerable stream. The best of the houses were mere huts, patched together with fragments of lumber of all kinds, with no floor, and a single sash for light. These were provided with conspicuous padlocks, and belonged, no doubt, to the "upper ten." More numerous were huts made by laying poles across low forks, and setting up bark or evergreen boughs against them, or hanging blankets or sacking to secure partial shelter.

Under one of the poorest and smallest of these, upon a few rags, lay a poor woman in extreme old age, totally blind and racked with pain. A fire at the mouth of the tent offered little warmth, and a little acorn soup was the only visible nourishment. With a thankful heart I heard, not many days after, that death had relieved her from suffering.

At one side of the village stood a great turf-covered "dance-house." The women were sitting about on the ground totally idle and stupid; the men and boys engaged in noisy games. Large quantities of acorns were gathered here for winter use. These they pound fine and manufacture into bread and soup. They pound them with smooth stones in circular basins in the rocks, and these primitive mortars are to be met with on every hand. As a desert after acorns, there were also gathered large quantities of "Indian berries," the scarlet fruit of the beautiful shrub which Mr. Vick calls American Holly. The Indians were also said to be very fond of the bulbs of some of the pretty flowers, *Calochortus*, *Tritelias*, etc. One, a beautiful yellow *Calochortus*, was known as Indian potato.

At certain times these Indians meet in large numbers to "mourn their dead." I saw one of these companies on their way. All were in their best attire, and, as means were found to transport all, old and young, and even the blind and crippled, I suppose it is an important rite.

The Indians I have met with in this region are superior to any I ever saw elsewhere—better

looking, better dressed, more intelligent and self-respecting in appearance. I am told that many of them have comfortable dwellings, some stock, and raise fruit and vegetables; but none, so far as I have heard, do much farming. The abundance of fish and game is a resource which some of them find quite profitable.

Meeting some of them at the village store, I examined their curious baskets with much interest, and "Indian Lewis" gave me these particulars: They are made of the inner fibres of certain roots, fine and tough as threads, woven so closely that they will contain water, and the outside is covered with rushes of different colors, interwoven as the basket is made. The work is extremely tedious, but the baskets will last a life-time. Lewis said that "before the white men came" these were used for cooking. They were made of large size, and water, meat and vegetables being placed in them, red-hot stones were added, and continually changed till the cooking was finished.

These Indians have long been at peace with the whites, and say that if any of the hostile tribes from the east should ever invade this region, they would be the first victims.

EDITORIAL NOTES.

THE BARTRAM OAK.—Mr. Isaac C. Martindale, Camden, N. J., has prepared and published, in pamphlet form, a complete history of this tree, of which there are now quite a number known, and shows that it must take rank as a good species. When Michaux's *Sylva* was published, and the kind named *Quercus heterophylla*, he thought the one tree on the Bartram estate the only one existing.

THE FILEREE OF CALIFORNIA.—This is the modern Californian for the older Mexican *Alfilerilla*—the common name of the *Erodium cicutarium*, an European, or at least, doubtfully native plant, which has found itself in remarkably comfortable circumstances in the climate and soil of California, and has spread like wild-fire through the State. And then, it is so welcome to the Californians! A correspondent of the *San Francisco Chronicle* calls it the prince of pasture plants.

THE TALLOW TREE.—An Australian paper says: "The Chinese Tallow tree, *Stillingia (Exeacaria) sebifera*, and several other plants of

Southern Europe and the Levant, are succeeding well and require very little attention. The Chinese Tallow tree belongs to the order Euphorbiaceæ or Spurge-wort family. Like the ordinary Euphorbias, its fruit contains three seeds, but they are embedded in a fatty substance, which is literally vegetable tallow. Mr. Robert Fortune, in his interesting work, *Tea Countries of China*, gives an exhaustive account of the Chinese method of extracting the tallow from this tree. It appears that they separate it from the seeds by bruising and steaming the fruit, and use it for making candles. The seeds, too, when separated from the tallow, yield a valuable oil by expression. The wood of the tree is employed in the manufacture of printing blocks, whilst from the leaves is extracted a valuable dye." This tree has long been under culture in the Southern United States, and is one of the leading shade-trees on the streets of New Orleans. We get tallow too easily to make it profitable to look to this tree for a supply, but it is well to know what other nations are doing.

PICEA PUNGENS.—Professor Sargent writes that "the following extract from a letter from Mr. John F. Baldwin, of Otley, Iowa, is interesting as showing that *Picea pungens* (*Abies Menziesii* of the Colorado botanists) was really introduced into cultivation as early as 1860, or two years earlier than the first seed of this species were sent home by Dr. Parry. A specimen from one of Mr. Baldwin's trees, now before me, confirms his determination of the species. Mr. Baldwin writes: 'I would say, in regard to my plants of *Picea pungens*, that I dug them up in the Rocky Mountains of Colorado, in April, 1860, and brought them to Iowa with several other kinds of trees, by wagon, being over a month on the way. The trees were packed in hay, as I could get nothing better to pack them in at the time. The trees were less than two feet in height, and at the time I began to dig them it commenced snowing. During the two hours we were engaged in digging the plants, snow to the depth of two feet must have fallen, so that before the trees were all taken up we had to dig down into the snow to find where they were. These trees are now 25 feet high, and are very hardy, having withstood our most severe winters. They have never been in the least killed back, and I consider them as hardy and beautiful as any tree which can be found in this country.'"

SCRAPS AND QUERIES.

RANGE OF INDIAN CORN.—S. P., Del. Co., Pa., writes: "There was a long article in the *Practical Farmer*, some years ago, on Zea Mays, our common Indian corn, in which the writer says that it could only be grown in North America, between Canada and the Gulf of Mexico, and East of the Rocky Mountains, which is denied by almost every one who visits my house. He said it could not be grown in any other part of the world. Please answer through the *GARDENER'S MONTHLY*.

[The misunderstanding arises, probably, from the form of expression, "only be grown in North America." The writer's meaning, no doubt, was that in North America it can be only grown within the limits named. As a matter of fact, it is grown in many other parts of the world.—ED. G. M.]

HYBRID HELIOTROPE.—T. F., Raleigh, North Carolina, sends a specimen of what people there insist is a "hybrid between a heliotrope and a verbena." But it is *Tournefortia heliotropoides*.

After all, when leading botanists profess to find "hybrid" forms in nature, on no other ground than that they seem intermediate between two other forms, other people may well be pardoned for supposing this curious plant to be a hybrid.

DRYING FLOWERS.—Miss H. says: "Will you insert a query in the next issue of the *MONTHLY* as to whether there is any preparation known to preserve the color of dried plants; what it is, and from whence obtained?"

[Very fine sand has been used for drying fleshy flowers, like cactuses. The flower is stood up in a little of the sand at the bottom, and then more filled in inside the flower and outside till the vessel is full. If the sand is a little warm so much the better, but if too warm the flower is likely to be crisp, and it will break to pieces easy. In drying pressed flowers, the art is to dry them as rapidly as possible. Rich, showy flowers, like cactuses and orchids, before they are pressed, should be dipped for an instant in boiling water, when they preserve their showy colors remarkably. If any of our correspondents can add to these notes, we shall be thankful.—ED. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATION.

NOTES AND QUERIES—No. 13.

BY JACQUES.

Locusts die off in August, but before this occurs, the females bore holes in the ground on the slopes of the hills sufficiently large to insert their bodies; then the males, it is ascertained, cut off their wings and heads, and thus the eggs in the bodies of the females are preserved against the inclemencies of the winter season. Advantage has been taken in Algeria, of the fact that the eggs hatch on the slopes of these hills. When they descend into the plains, trenches are dug at the base, and when the locusts are within a few yards of the pits, they are

enclosed between two long strips of canvas placed perpendicularly in parallel lines leading to the mouths of the pits. A piece of oil cloth is then spread on the ground, extending over these trenches in a slanting position, over which the locusts continue to advance, and are precipitated into these traps in innumerable quantities, and immediately destroyed. Pretty well for Turks.

Silk was successfully raised in the original United States before the Revolution, and enough made by ladies to be sent abroad to make dresses for themselves; and so it will be again, but on a larger scale. There exists sources of income to individuals of various kinds, not yet tried or exhausted. Fifty years ago a lady bought all her bonnets by the sale of limes,

from her two lime trees, taking advantage of the market when imported limes and lemons were not to be bought.

There is evidently increasing admiration and patronage for the Aloe, and the whole family. But what to do with it in the Winter, is a puzzling question, as it takes much space when large. A pair of beauties were recently sold for one hundred dollars. The Aloe is the emblem of silence, the winds having little power to move its leaves. Can any one tell what is the best and most economical way to house them safely in Winter?

Ring Marks in Trees.—Some doubts as to the value of rings in tree growths as usually understood are lost by experiments in South Wales. The rings counted on a tree known to have been planted eighteen years previously, were found to be thirty-six in number, or two for every year.

The Leadville Herald reports the finding of a veritable glacier within twenty-five miles of the town, in an unfrequented and heretofore unvisited gulch. What must they find next?

Silk Worms.—One likes to pick up novelties. In the very good book Lang's Cyprus, we find that "When it is desired to hatch the silk worm's eggs, the women of Cyprus wear the cloth upon which the eggs have been laid round their waists, and cause them to hatch by the heat of the body." There was a newspaper story going the rounds not many years ago, that a man had hatched a duck by wearing the egg under his arm for the short space of a month or so.

The Cotton Worm.—The third bulletin of the United States Entomological Commission gives the results of Prof. Riley's researches on the cotton worm, which is so injurious to the cotton plant, that the average loss is estimated at over twelve millions of dollars a year. Sad enough, but there is a human species that wastes vastly more annually, by keeping millions of men under drill. It would be better to try to exterminate the latter worms than the former.

Contrary to Darwin's conclusions, that *Drosophila* is carnivorous, Prof. Regel finds on comparing a number of plants fed with meat, with a series which were not, that while the average weight of the seeds was greater in the former case, this was more than compensated by their much smaller number, the gross weight being considerably less. And found also, that

the leaves were obviously injured by the flesh food, and that the power of the plants to resist the Winter was diminished. He thinks the epithet carnivorous, improper.

Go West.—Dr. Cyrus Thomas, of Illinois, a member of the United States Entomological Commission, kindly reports to young men with an inclination to go West, that the loss from the chinch bug in Illinois alone, in 1850, was estimated at \$4,000,000; an average of \$4.70 for every man, woman, and child then living in the State. In 1864 it destroyed three-fourths of the wheat, and one-half of the corn crop throughout the Valley of the Mississippi, a loss to the farmers of \$100,000,000. Crossing the river they meet the Rocky Mountain Locust, a larger and even more destructive insect. Not to put too fine a point, we say nothing of wind, storms, etc., and conclude to stay East.

Prof. Huxley's Physiographia: Appletons, 1878,—is a truly valuable scientific work, easily comprehended. At present, he says, the deepest mine is near Wigan, being 2,445 feet. Experiments on the temperature at different depths, while sinking the pit, showed that the average increase is about 1° Fahr. for every fifty-four feet. In other sinkings, different results have been obtained, the rate of augmentation being affected by the character of the rocks, and it will not be far wrong to assume the average increase of 1° for every sixty-four feet. At the depth of only a few miles, the heat would be sufficient to fuse any known rock, and whatever the general state of the earth's interior, there must be at least masses of molten rock. No less than 10,000 hot springs are said to exist within the area of the Yellowstone Park. On the sources of carbon in plants, the book is very full and satisfactory, the supply being from the atmosphere.

Springs.—In *Physiographia* will be found the true theory of springs, alone worth the cost of the volume.

Poison Vines.—We cannot recollect that any of the copious writers who described the wild plants in the Philadelphia Park, commended or even enumerated the great amount of poison vines; lately they were brought to notice by the orders of the Board of Health to remove them, after long possession of that overpraised possession of a great city. The Board of Health deserves credit for peeping into the doings of the other close corporation.

U. Wait, is the name of a New York plumber who advertises that all business is promptly attended to. No doubt this plumbing fraternity has managed to be the most unpopular in all America.

It is not often that so emphatic an announcement is made by a respectable English paper as we find in the *Pall Mall*. It says, and probably truly: "We wish here to reiterate an opinion which we hold with no less anxiety than conviction, that one of the most important of all facts underlying the future of England is this: Through its extraordinary development of the grain-growing industries abroad, the operation of the irresistible system of free trade, the multiplication and aggrandizement of foreign navies, the people of this country, (England) are exposed to great peril of starvation; or panic of starvation, in the event of any hostile alliance against us, which does not seem impossible as things go. History must repeat itself. 'God save the Queen.'" With millions now in Europe under arms, and taken from production, what shall we say of progress. The condition of Europe is not happy. It gives up one-third of its male population to sterile drilling. How happy the man in his American greenhouse. Well may the *Spectator* say, that, "Through war the situation of mankind is becoming unendurable."

EDITORIAL NOTES.

KIND WORDS.—While sending an interesting note for publication, a correspondent says: "I was much interested in the last number. In my humble opinion it has improved wonderfully since 1872, when I first became a subscriber. The correspondents come from so wide an extent of country, and the contents remarkably varied."

[We have had so many of these kind words lately, that it is fair to assume that it is a general sentiment. We suppose some credit may be taken for editorial management,—but allowing for all this, very much is due to the many kind friends who so freely send us notes of their observations and experiences. In this connection we may say that occasionally a valuable communication may stay on hand several months, because of some material referring to some recent question requiring precedence. It is not often that this happens,—but enough so

to make this explanation of some service.—Ed. G. M.]

DIGNITY OF A SEEDSMAN.—In the recent election in England for members of Parliament, one of the candidates for South Lincolnshire was Mr. Chas. Sharpe, the well-known seedsman. The other candidate was a gentleman of leisure, who rents out properties, and, amongst others, owned a book-stall at the railroad station. The following correspondence has been published:

Mr. Charles Sharpe, the Liberal candidate, received the following letter from the Rev. G. Potchett:

"Mr. Potchett has received an address 'To the Independent Electors of South Lincolnshire,' accompanied with a request of vote and interest from a 'Mr. Charles Sharpe,' of Sleaford. If it is the same Mr. Sharpe who keeps a garden-seed shop in Grantham, Mr. Potchett hopes that a vast majority of the electors will mark their disapprobation of such arrogant and intense presumption.

"Denton, Grantham, April 1."

Mr. Potchett received the following reply:

"Sleaford, April 3, 1880.

"Sir,—I beg to acknowledge the receipt of your letter of the 1st inst., and I have the honor to inform you that I am the proprietor of the garden-seed shop at Grantham, and that I have the presumption to aspire to sit in the same house with the proprietor of the book-stall at Grantham Station. I am, sir, your obedient servant,

CHARLES SHARPE.

"The Rev. G. Potchett, Denton."

PROF. COPE AND THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—Prof. Cope continues his attacks on the Academy in *The American Naturalist*, much to the regret, we are sure, of his best friends. It would not be just to Prof. Cope to say he does not believe in his own statements,—it is much more charitable to refer the distortion of facts to some other source. But, in justice to the Academy, it is but right to say that his statement is not correct that "Prof. Cope was dropped from the Council (of the Academy) on account of absence from more than six of the meetings, Prof. Cope having been engaged in a scientific exploration in Oregon." It would, of course, be a strange thing for a society having in view the advancement of science, to "fix a penalty for the absence in question," and it is evidently the intention of

Prof. Cope to make the world believe that the Academy did this very strange thing. But every one acquainted with the Academy knows that it is perfectly practicable for a member of its councils to be absent six months or a year without losing his seat, and they will also know that when, notwithstanding this, Prof. Cope's seat was vacated, it shows that he has not told the whole story.

Equally short of the whole truth is the attempt to make the world believe that Dr. Le Conte favors his views and is dissatisfied with the working of the Academy, when it is well known that the present administration of the Academy has no warmer friend than Dr. Le Conte.

Further, it is said "one of our rising young naturalists has been relieved of the scholarship which was endowed by A. E. Jessup, and which paid a small salary, without the offer of an equivalent place." This is equally remarkable for the inference left to be drawn through not telling the whole truth. The fund provides that beneficiaries shall have its advantages for two years. At the end of that term there happened to be no suitable applicant, and the excellent Mr. Ryder was offered a continuance until an acceptable successor should arise. He was, indeed, four years on the fund instead of the two promised, and, much to the regret of the Academy, it had "no equivalent place to offer him."

But the most singular fact is that Prof. Cope should feel justified in using a public magazine like the *Naturalist* to attack a private institution, for the Academy has no endowment for its maintenance. Some five hundred members pay \$10 a year, and there are some life members of \$100 each. These pay to support in their own way their own private property; what they do for science is their own free and voluntary gift. An immense majority of them have voted down Prof. Cope's ideas of management, and in consequence, he appeals to the public for the sympathy which the Academy denies him, just as he would be justified in doing were it a public institution and it was squandering the public funds.

There have been some small sums left to the Academy for special purposes, at various times, but it will surprise many readers to know that, while Prof. Cope would have it do things which only richly-endowed institutions do, it has maintained its well-known reputation over the world, with its large museum and magnificent library of over 20,000 scientific volumes, on an

annual income of about \$6,000 a year; a great portion of which has to go for city expenses! Indeed, so far from the public having any right to criticise their work, the most of the noble results reached here have been from the individual labors of the members, as well as from their individual cash. The magnificent herbarium of the Academy, unequalled, perhaps, in the United States outside of Cambridge, in its arrangement and care is the result of the free labor of Pickering, Bridges, Durand, Burk, Diffenbaugh, Parker, Redfield, and some others, at odd times, with little more cost to the institution than gas-light. And what is true of the Botanical is true of other departments. One would suppose that Prof. Cope might mention some of these facts in his tirades,—but then we may suppose a good many other things.

S. SANDS.—Now and then we read of some one whom, it is said, "brain-work" has killed; but we have always doubted whether the sound, legitimate use of the brain was any more trying to life than any other kind of labor. In the agricultural and horticultural press we have scores of men, not enervated by the excessive use of spirits and stimulants, who have had the pen continuously in hand for an incredible number of years, and are as bright and strong on their approach to four-score as any dunderhead could be. We have lately noticed P. R. Freas, of the *Germantown Telegraph*, an editor for fifty years, without a week's intermission. And now we may note Samuel Sands, of the *American Farmer*, who has recently passed his eightieth year, and gives promise of many more days of usefulness. It is pleasant to notice so many instances where the days are long in the land of those who devote themselves to such unselfish work.

INTELLIGENT FLORISTS AND LANDSCAPE GARDENERS.—Referring to the Editorial Note in our last, a correspondent from Rome, Georgia, says: "I read with much interest your recent editorial on this subject. It is just our situation here. I have long desired the services of an intelligent landscape gardener, but have failed to find one within reasonable distance." We may repeat what we said last month, that there never was a better time in the history of our country, for men of general intelligence, gentlemanly deportment, with a thorough knowledge of the finer branches of their business, and a small capital, so that they can afford to hold on a little while till their talents become known.

COFFEE CULTURE IN LIBERIA.—That a man is not regarded as a prophet in his own country, often has apt illustrations. In our country, Mr. Ed. S. Morris has not been wholly overlooked in connection with the industrial development of Africa, but his work is probably more appreciated in Europe than it is here among his own friends. The discovery of the Liberian coffee, and its adaptation to Liberia, was not only his work, but the extensive culture in that country by which a degraded and poverty stricken race is elevating itself commercially, and, as always follows in the wake of industrial pursuits, intellectually and morally, is in a great measure his work only.

In a work published by Mr. Morris, written as an appeal for means to educate the wild Africans around the Colony of Liberia, we find the following sketch of a negro boy, who is offering a present of two leopard kittens, which he had caught wild in the African woods; all he had to bestow. Now, as a civilized industrial, he sends coffee, sugar, and other products of his civilized labor, instead of wild cats, and native beasts. The change is gratifying to the whole world. The little Colony of Liberia is doing more to civilize Africa, than all that has been done by other nations for ages, and among the many who have worked in this useful field, E. S. Morris should ever be gratefully remembered.



PEAR PROGENITORS.—The *Florist and Pomologist* has the following: "In the course of a series of lectures, published some short time since by the late Prof. Karl Koch, the origin of our various fruits is one of the subjects treated on. The learned and traveled Prof., in these lectures, mentions six species of *Pyrus*, as the progenitors of our cultivated pears, namely: *Pyrus sinensis*, of Desfontaine, from China and Japan; *P. cordata*, of Desvaux, from France, etc.; *P. Achras*, of Gaertner, from the steppes of Southern Russia, and naturalized in France and Germany; *P. Sinai*, of Desfontaine, from

Syria; *P. elæagrifolia*, of Pallas, from north-east Asia Minor; and *P. salicifolia* of the younger Linnæus, from the Caucasus. Linnæus united all the Pears, both wild and cultivated, under the name of *P. communis*, and this name we employ now for the cultivated varieties collectively. At Torek, in the northern Caucasus, Pear trees eighty and even a hundred feet high

are not rare, with trunks three to four feet in diameter. Siebold introduced into the botanic garden at Leyden, eight varieties of Japanese cultivated Pears, differing widely in size, shape, flavor, and time of ripening. As a species, *P. sinensis* is distinguished by its rather large ovate or nearly round leaves, which are abruptly narrowed into a short point, and furnished with bristle-pointed teeth; in the spring, when they unfold, they are of a brownish red. In Germany it is planted for ornamental purposes, but it has not yet borne either flower or fruit.

P. cordata is said to occur in Persia, but Prof. Koch thinks the Persian tree is probably *P. Achras*. The latter must have originally existed in the steppes of Southern Russia, especially in the country of Don Cossacks, for so far back as the history goes, the pear tree has played an important part in the customs of the people; with them it is the sign of grief. It is likewise held in high esteem in their festivals, especially at Witsuntide; and it is under a pear tree that the annual custom takes place of making the most beautiful maiden the queen for the ensuing year. *P. Balansae*, of Decaisne is probably distinct from *P. Achras*, to which Boissier refers it. *P. Sinai* is certainly one of the most interesting of pear trees; it entered largely into the parentage of the early Italian varieties, but it does not appear to have been introduced into France till towards the end of the last century. The area of its distribution in a wild state is not known with certainty; it certainly is indigenous in Syria, and perhaps also in northern Babylon or Assyria, which was formerly a Persian province, but it is doubtful whether it extends to Persia proper. This species was probably carried by the Phoenicians from Syria to lower Italy and Sicily, as well as *Rosa Damascena*, before Homer's time. *P. Syriaca* and *P. glabra*, of Boissier, together with the *P. Boveana*, of Decaisne, are varieties of *P. Sinai*, belong to *P. Achras*. *P. elæagrifolia* (not *elæagnifolia*, as sometimes written) has played an important part in originating garden varieties. *P. Cotschyana*, of Boissier, is an Oriental variety with very woolly leaves, and a large, round fruit. It is uncertain whether *P. salicifolia*, which is a very ornamental species, has contributed to the production of cultivated varieties; but it is the *Achras* of Theophrastus and other early writers, and is still very widely dispersed in Greece."

MR. DOWNING'S NOTE ON BARRY.—As we go to press we have a note from Mr. Barry, in explanation of the points criticised by Mr. Downing, which shall appear next month.

THE LATE DAVID LANDRETH.—The London *Garden* states that the late David Landreth was "the chief officer of the agricultural section of the great Philadelphia exposition;" in which are two errors worth correcting. First, it was the International Centennial Exhibition of which Mr. Landreth managed the Agricultural Department,—and secondly, the Mr. Landreth who managed so admirably that department,

was Mr. Burnet Landreth, and not Mr. David Landreth whose death we now deplore.

LECTURE ON SQUASHES.—No doubt the members of the Camden Microscopical Society were astonished at a proposed lecture "on squashes," but by a report in a Camden paper of the remarks, they evidently went home instructed. Who would think so much could be said of a squash. Three hundred and forty species of the squash family,—their poisonous and their edible qualities,—their enormous growth, "like Jonah's gourd," and their thirst for water; their lifting power as illustrated by the Amherst College experiments. Well let any one try their hand at a lecture on the squash, as friend Martindale did, and they will not need even the mammoth tree of California, or the Banyan of India for a better subject. It is strange how wonderful are the little things about us; and wonderful how little is known about these little things.

RUSSELL P. EATON.—We recently expressed our regret that this excellent gentleman had left the editorial field he had so long occupied in the *New England Farmer*; and now we have to welcome the prodigal's return. He has taken the *Merrimac Journal* of Franklin Falls, New Hampshire. If the people there have no fatted calves ready for him, he will soon teach them how to obtain them. There will be few lean kine around on the farms of his readers.

ROSEBANK NURSERIES.—These Nashville nurseries, one of the most famous and thoroughly reliable in the South, will in future be known as the Rosebank Nursery Co., instead of Truett & Morgan. Mr. Morgan retires, but with some new elements, Mr. Truett, Mr. Webber, and the old management remains.

PRIZE ESSAY ON NEW HARDY ORNAMENTAL SHRUBS.—The prize offered by the Massachusetts Horticultural Society, was obtained by Samuel Parsons, Jr.

THE AMERICAN GARDEN.—This little paper, formerly owned by Messrs. Beach, Son & Co., has been purchased by Messrs. B. K. Bliss & Sons, and the first number of the new series appears with Dr. Hexamer as editor. Its scope may be inferred from the following from the leading editorial: "Although nearly all agricultural papers devote a part of their columns to horticultural matters, the bulk of their con-

tents is of no interest to those who cultivate not more than a garden." It is published quarterly, and we are sure will be very useful to the class for whom it is intended.

PRACTICAL CAMELLIA CULTURE.—By Robt. J. Halliday. Published by the author. General hints on flower culture tell a great deal to the flower culturist, and there are many good works of this character. But there is much need of special treatises on certain classes of plants, and the camellia, though so old and so well known, has much that is modern in its treatment, and which will profit all lovers of camellias to know. Baltimore is a good field to work in, for of old it was a hot-bed of camellia growers, and new camellias from Baltimore raisers were among the regularly expected things. If there be anything to be known about this famous plant not known about Baltimore, it will be a marvellous thing. At any rate, this little book of Mr. Halliday's seems to have not forgotten anything, and it will doubtless have a good sale. The simple manner in which all the directions are given is a good point in its favor.

AMERICAN GRAPE-GROWING AND WINE-MAKING: by George Hussmann, Professor of Horticulture in the University of Missouri. New York, Orange Judd Company.—Professor Hussmann, noted as a grape-grower, has already issued a small work on grape culture, which has rendered him well-known in the literature of viticulture. No one is better fitted for the task of teaching in this line. Though many works have already appeared in this country, the grape has gone far beyond its literary history. At no period has its culture been, on the whole, more successful than now, so that, notwithstanding all that has been said, there is more than ever to tell now, and more people ready to hear the news. Mr. Hussmann's book is, therefore, timely, and no doubt will have a large sale.

In looking back over past works, and noting how many pages have been devoted to the "description of varieties" no one now cares anything about, we have sometimes wondered whether this waste of space will be continued in future works. There is not so much of this in Mr. Hussmann's book,—and if there is more than we think necessary, it is pleasant to say that beyond this there is enough to make the work permanently valuable as a guide for practical vineyard culture for many years to come.

We are glad, particularly, that Mr. H. has shown the evil effects of vines from layers. Much of the ill success of vine culture in the past has arisen from the sending out of plants from enfeebled parent plants,—and every horticulturist knows that there is nothing so much weakens the constitutional power of a grapevine to resist disease as the continual practice of taking layers from it. The weakening of the main plant is in time communicated to the progeny, and it is from this and similar causes that so many good kinds are reported unfit for cultivation in particular localities. The plants, strong as they may have appeared, and not the variety, were to blame.

HORTICULTURE AT THE PARIS EXPOSITION.—M. Charles Joly has issued a little work entitled *Etude sur le Matériel Horticole*, which reviews and does justice to the numerous horticultural exhibits of the Paris Exposition. These exhibits consisted chiefly of plans of some of the chief parks and gardens of Europe. Rockeries and grottoes on the ground; greenhouses and greenhouse plants, horticultural instruments, implements, ornaments, literature, and the bedding plants by which the grounds were ornamented.

We do not find that there was anything of the immense collections of hardy trees and shrubs which gave such an attraction to our own Centennial, and when we remember that one American firm offered to place one thousand species and marked varieties of ligneous plants on the grounds, and was refused permission to do so on the technical ground that his government had not recognized the exhibition. Under these circumstances it seems but retributive justice to learn from M. Joly's review, that an immense space originally intended for foreign exhibits was not filled, "mais, dans les derniers temps, ont fait modifier les dispositions premiers et obligé les horticulteurs à garnir les espaces non occupés."

MUSCLE BEATING; by C. Klemm, New York: M. L. Holbrook & Co.—We do not know that horticulturists need any theory of gymnastics. A spade or a hoe is warranted to cure the worst case of dyspepsia. If people have no garden, there is the axe and the woodpile, and the wives and daughters of these unhealthy people will call them blessed. But what if there are no gardens,—no wood-piles,—no fields and forests where the poor fellow can

go round into and collect wild flowers,—no cricket or base ball club? Why, then he may get this little book and mark its counsels well.

NEBRASKA STATE BOARD OF AGRICULTURE FOR 1879.—Among the numerous chapters of especial importance to horticulturists is one on Plum Culture, by Mr. D. W. Kauffman, who by trying Windoe's plan of coal-tar smoking three times a week for six weeks, had 30 bushels of plums from 45 trees.

TRANSACTIONS OF THE IOWA HORTICULTURAL SOCIETY, from J. L. Budd, Ames, Iowa, received with thanks.

COL. VERNON HARCOURT.—So recently as our last number we had to note the generous action of this gentleman toward his aged gardener. It is now sad to have to record his death, at Buxted Park, in his eightieth year. It is remarkable how strange is the mixture of life and death! On the eighth of May came a brief word of his death, and two days after came to hand a letter from his own hands—which had come by an overdue steamer—and which was, perhaps, the last letter he ever wrote. In this letter he was planning for the planting of an arboretum wholly of American trees and shrubs on the estate of Buxted Park.

The intelligent love for gardening which he and Lady Catharine Harcourt always displayed, and the encouragement they gave to horticultural societies and horticultural progress, will make their loss felt, we are sure, in England. In the love for rose culture, there were few greater enthusiasts. Several leading rose growers in England and France had standing orders to a certain amount per annum for all that was new or good in roses. The love was a sort of inheritance. His mother was Lady Leveson Gower, whose name, in connection with one of the most beautiful varieties, is a sort of "household word" with rosarians. The pleasure which they took in tree-growth was almost childlike, and seemed to give them just the same real enjoyment as children take, and makes us all wish we were like children again. When it was the privilege of the writer of this to be so kindly received by them at Buxted Park, and he was detailing to Lady Catharine the measurement of the original Robinia at Paris, some one was sent to measure the fine specimen in the Park to note the difference; and when the figures of the measurements of a tree of *Pinus insignis* at

St. Clare, and one at Osborne House were given, and the result seemed in favor of the St. Clare specimen, the pleasure it seemed to give them will not be forgotten; "for," said Col. Harcourt, "we planted that tree at the same time Prince Albert planted his, and we were always watching each other's tree to see whose throve the best."

Col. Vernon and Lady Catharine Harcourt—both gone so recently—will be remembered by many. Though with the blood of numerous representatives of Earldoms and Dukedoms running through their veins they were naturally proud of the privileges of rank, they seemed to hold their power and immense possessions in trust for the general good, and instead of being jealous of the entry of any one of what in England would be considered the lower classes into their circle, they aided all they could in the general advancement, and cordially welcomed worth and intelligence wherever it was found—a sentiment they shared equally with their early friends and many-year associates, Queen Victoria and Prince Albert.

M. SOUCHET.—This French horticulturist has died recently. He is well known as the raiser of many *Gladiolus* and other florists' flowers, and to fruit-growers through having first sent to this country the raspberries *Hornet* and *Souchetii*.

DEATH OF E. J. EVANS.—The *York Press* says: "It is with many sincere regrets that we announce the death of our esteemed and much-lamented fellow-townsmen, Edward J. Evans, Esq., who departed this life on the evening of Monday, the 19th ult., after a long illness, aged 42 years. Mr. Evans was the eldest son of John Evans, Esq., a prominent member of the York bar, who died a few years ago, and was one of our most exemplary citizens, possessing alike the respect and confidence of the very best members of this community. For many years he was at the head of the large and extensive nursery business conducted under the firm name of E. J. Evans & Co.; was an industrious, energetic, educated, courteous, reliable and honest business man, and a polished and respected member of society, whose early death is much regretted by all those who know and appreciate his many manly virtues."

To his mourning family and friends, we tender our most heartfelt sympathy for this, to them, irreparable loss."

SCRAPS AND QUERIES.

CORRECTION.—"Page 114, of GARDENER'S MONTHLY, for Numey, read Tuomey, and for Werhonoka, read Weehawka. I do write so badly. W. St. J. M."

NOTES FROM COL. WILDER.—We hope Col. Wilder will pardon our giving the enclosed extract from a private letter. It will, we are sure, gratify his world-wide friends to note his continued enthusiasm in horticultural pursuits: "That's right! Keep us posted in regard to men and things; all honor to the patriarchs, Freas and Buist; and, last but not least, to MEEHAN, the honored father of honored sons. Landreth is gone! My old and early co-worker. I bought of him forty years ago at his home, C. Landrethi. He was my right-hand man of Philadelphia at the great exhibition of the United States Agricultural Society, in 1856. He has planted thousands of living monuments to perpetuate his memory. May his sons go and do likewise. I am glad to see that you keep the run of things about Boston. Prof. Goodale has been out twice lately to see me in regard to his fund for the botanical garden, and is getting on well. I was among the strawberry beds yesterday—over forty kinds. Some are looking splendidly; now in full bloom are Pioneer, Hervey Davis, Crescent Seedling, for early ones, are a sheet of bloom. Some of my late crosses are interesting, especially Crescent by Pioneer, Hero by President Wilder, etc., etc. The new American grapes interest me much. These I have grafted on strong old vines, which are now starting new growth, and I shall be able to prove all of them, I think, so as to have fruit next year at the next meeting of the American Pomological Society, which I intend to call in Boston."

Hybrid flowers. Good. 'Some awful examples, now and then, to illustrate its teachings;' for instance, *gloriosa* on the lily, all of which were lost

during my illness, and nowhere to be found. Bad, bad, bad! They were feeble, and every year growing more so, only one having ever flowered, and all showing a want of consanguinity. But never mind, try again. Try every art. Who knows what great things may be accomplished by the use of the elements which Providence has placed in our hands for the improvement of nature?"

CORRECTION.—Mr. P. A. M. Van Wyck sends the following: "In my description of the Jefferson Grape, there is one mistake which I wish you to correct in next issue. The article says: 'I have fruited this variety *ten* years;' it should read, I have fruited this variety *two* years, as I have had the vine but three years. It is a vine of great promise, and I expect to get thirty-pounds of fruit from it this fall."

[Of course, we are always glad to make corrections. After looking into our correspondent's MSS., preserved by the proof-reader, it is but fair to the compositor and the proof-reader to say that they are quite pardonable for having printed ten instead of two; for the letters, as written, are much nearer ten than two. Mr. V.'s MSS. is, however, quite legible in comparison with much that we receive; but we may take occasion to remark on what must have occurred to most persons who have correspondents, that the number of those who write illegibly has increased frightfully of late years. Nothing is more trying to a busy man than to spend fifteen minutes in trying to puzzle out what ought to have been clear in five. Whole lines have frequently to be guessed at, and if it were not that one can form some idea of what is meant by what has gone before, it would be impossible to make any sense at all. It is very rarely that complaints of errors come from those who write legibly. Mr. Van Wyck, we are sure, will pardon us for taking a text from his little slip to read a lecture to other people.—Ed.]

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

THE NURSERYMEN'S CONVENTION.—As already noted, the annual meeting will be held this year at Chicago, June 16th and 17th. The Pennsylvania Railroad Company, with its usual

liberality to these enterprises, will issue round trip tickets from Philadelphia to Chicago for \$30, extending from June 10th to 30th. The names must be sent at once to Geo. B. Thomas, West Chester, Pa., who will endorse them for the railroad company.

REPORT OF THE CONNECTICUT STATE BOARD OF AGRICULTURE,—from T. S. Gold, Secretary. We acknowledge with thanks.

MICHIGAN POMOLOGICAL SOCIETY,—from J. W. Garfield, Secretary.—This beautiful and very useful volume is rendered more attractive by being embellished by a portrait of T. T. Lyon, who, as our readers know, eminently deserves any honor the Michiganeese can bestow on him.

NEW YORK HORTICULTURAL SOCIETY.—It is a pleasure to note the increasing strength and activity of this young society. It promises, if it continues in its present course, to become the most popular society in the United States.

It is particularly gratifying to note that it has adopted one of the suggestions we have often made as essential to the prosperity of a society in these modern times, namely: advertising its successful exhibitors. Every month with its programme for the forthcoming meeting, it gives in the circular the names and exhibits of the successful competitors, and these meritorious contributors therefore have their good works distributed far and wide. In old times when there were no newspapers, and little use for printers' ink, people were expected to go and see every thing for themselves. Now people are satisfied to read about them. Then people who exhibited were satisfied to know that people saw their products, and such "advertising" was thought to be a full equivalent for a good exhibit in many cases, but now, in addition, an exhibitor wants to see his name in print, and, as we have often said, if the societies take care to do this for the exhibitor, the exhibits would largely increase. Hitherto horticultural societies have been satisfied to spend a large amount of money on elaborate "schedules," and on begging letters, and begging committees, urging plant growers "by all they love," to "send something." The exhibitors go at an enormous expense; the committees read their awards before half a dozen members, and if some newspaper is generous enough to print the "report" without cost to the society, it is all well, and if not the exhibitor must be satisfied. Now, in a local community, interested in their immediate neighbors, the local newspaper may be tempted to print these long reports; but a cosmopolitan paper cannot do this. For instance, does a Californian, or a Maine, or a Florida reader of the GARDENERS' MONTHLY need to know that

John Rosebud, of Smithville, had the premiums for six best cabbages? But the reports could be made of interest to everybody everywhere. For instance in the excellent plan of advertising the successful exhibitors which has been adopted by this society, what is to prevent the description of the exhibits? For instance, when we read in the report of the New York Horticultural Society, that "in the collection of Mrs. Morgan, the *Cypripedium caudatum* was especially fine," why not tell us how many flowers it had, and how large it was across? It is something to know that *Cypripedium caudatum* can be grown so as to be admired, but it would much better to have particulars. Distant people would then be interested in reading the reports as well as those who know the exhibitor, and the "advertising" be immeasurably advanced.

The other matter we have so often urged, namely, discriminative premiums instead of competitive ones, would make all this unnecessary. Mrs. Morgan would have had a premium for *Cypripedium caudatum* "because it had twenty-four flowers on, and the plant measured two feet across," and not simply as now announced by the committee it was "all very fine," which means anything the reader may choose to imagine.

We are tired of recommending these "steps with the times," to those fossilized institutions all over the country, many of whose active leaders do not even subscribe to a horticultural magazine to get the latest ideas about the wants of the community, but go staggering on under loads of discouragement, wondering "why the thing has run down so;" but seeing the wisdom which seems to run in with the management of this young New York Society, we are moved to revert to the subject once more.

PENNSYLVANIA HORTICULTURAL SOCIETY.—The second of the revived monthly meetings of the Pennsylvania Horticultural Society was held on April 19th, and with much success. Azaleas were the chief attractions. Dreer's New Coleus; decorative plants from John Dick; hardy herbaceous plants from John Bell; floral designs from Eisele Bros., and Kift & Sons, and new geraniums from R. Buist, made up the bulk of the exhibits. A. & J. McGuigan sent fine specimens of various imported tropical fruits.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Lately we were in a very stylish garden, which had at considerable expense been remodelled by a distinguished landscape gardener; and we were seated with the excellent proprietor in a "summer house," designed after some distinguished European model, and which we were expected very much to admire. It was a board building, and the outside was covered with bark and moss. The inside was faced with split rods made to represent stars, diamonds, and other figures. It was indeed a very pretty piece of work; but oh! wasn't it hot! It was indeed a "summer" house, and the writer of this heartily wished for a winter one. It was an octagon, and the "door" and two window holes let in all the air. It is an excellent illustration of the absurdity of imitating European styles in our country. Far better would it be to provide some arbor of vines, which, while keeping out the heavy sun, lets all the cool breezes through. And by the way, did any one ever notice how much more cool and pleasant some vines make a place than some others will? and also that some trees seem cooler than others? People say it is always cool under a willow or a walnut, and they are certainly cooler than some other trees are. The reason to our mind is that they have an immense number of small leaves, through which

the cool air circulates; while stiff, broad-leaved trees shut out the air as thoroughly as our friend's English summer house did.

New sown lawns are liable to be crowded with weeds. There seems no better remedy than to hand-weed, filling the holes made with earth in those cases where the roots are large. In some cases this hand-weeding will have to be done for two or three successive years. The seeds of the common Plantain, for instance, do not all germinate the first. It is often three years before they all grow. The greatest labor is during the first year of sowing, however. The increased encouragement of the grass helps to keep down weeds.

Ornamental hedges that are thin at the base receive much encouragement from cutting back the strong top shoots. Indeed, this applies to all growths, trees and shrubs, evergreens included. Any check to the more vigorous shoots while growing encourages the weaker ones. Remarkably beautiful specimens of anything may be had by noting this. The branches are rendered uniform in vigor by this sort of watchfulness, and can be made regular from bottom to top.

Plants set against wall and piazzas frequently suffer from want of water at this season, when even ground near them is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucketful of water, allowing

it time to soak gradually away, and when the surface has dried a little, draw in loosely the soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight of water, and the harder the soil becomes, the easier it dries; and the result is, the more water you give the more is wanted.

It must, however, be borne in mind that much injury often results to the newly planted trees from summer watering. The cold water cools the ground, and we need some warmth in the soil to encourage new roots to push. Still, trees must have some water when the ground is dry, but it must be used with caution.

Amateurs may have some rare or choice shrub they may desire to increase. They may now be propagated by layers. This is done by taking a strong and vigorous shoot of the present season's growth, slitting the shoot a few inches from its base, and burying it a few inches under the soil, or into a pot of soil provided for the purpose. The young growing point of the shoot should be taken out in the operation. By the English mode of making the slit, a great number of the shoots will be broken and spoiled. Anything can be propagated by layers; and it is an excellent mode of raising rare things that can be, but with difficulty, increased by any other.

COMMUNICATIONS.

A HANDSOME TOWN.

We have had occasion to note that the care of streets and sidewalks should properly be regarded as a work for horticultural societies or horticulturists to take in hand. What can be done when the right spirit prevails is shown by the following extract which we make from the annual message of Henry Probasco, Esq., mayor of Clifton, a suburb of Cincinnati:

"The public avenues are maintained in excellent condition, notwithstanding a steadily increasing travel, incident to the increasing population and pleasure travel from the city, which throngs them daily in fine weather throughout the year. Fifteen years ago they were without foundations, covered about fifteen feet wide with rolling gravel, never rolled, without crossings or footwalks, and to leave the centre of the track was to stick in the mud. Since then, without the aid of Commissioners to smile on contractors, and contractors to demoralize laborers, without creating debt, the grades have been im-

proved, roads widened, with their foundations substantially macadamized, and crossings made wherever needed. Along the sides of the road drains, gutters, and culverts have been well constructed, with handsome footwalks. The widening and maintenance of all these costs less than one thousand dollars per mile annually, which preserves them in a condition which is superior to those of any other corporation in the State.

"Bryant avenue, 905 feet in length, has been made and completed the past year, the portion widened at the expense of the village costing about \$1,300, the amount having been included in the road expenditures.

"The footwalks have been increased by adding a new one on the Carthage road, on the Clifton side, from Forest avenue north to Mitchell avenue, a distance of 4,280 feet, made at the public expense, adding materially to the comfort of property owners there, as well as to the immense foot travel from the city to and from St. Bernard.

"The footwalks are being steadily planted and replenished with handsome shade trees of many varieties, of which there are 1,000 in the village nursery, given by one of the citizens for public uses. These are growing in size and beauty, and will soon be available at any moment when required.

"The Clerk's annual report, duly attested on the 15th of March, and published according to law, shows a balance in the treasury of \$7,279.99. No debts are contracted for any purpose whatever, nor has the last levy for taxation exceeded the average for the past seven years more than one mill on the dollar.

"All the principal avenues are lighted with city gas, supplied for private and public use on terms as favorable as those given to the city of Cincinnati. The number of gas lamps on the avenue is 143, and gasoline 48.

"In 1877 the Trustees of Resor Academy made valuable improvements to their building, which is mainly appropriated for the use of the public school, town hall, Council Chamber, jail, etc. It is used to its fullest capacity at present. The Trustees having been applied to for additional rooms for public school purposes, they have had consultations with the Council and Board of Education, caused plans to be prepared for an addition to the south wing of the present building, which will give ample accommodations for many years at a cost of about \$5,000. These improvements, which are now very much needed, will be completed during the present year should the several parties take immediate action.

"The Town Hall is available at all times for public uses to the citizens at the cost of heating, lighting, and service, on application to the Mayor, who issues permits in accordance with the regulations adopted by Council.

"During the past year several villas and cottages had been built, improved, or in course of construction, adding beauty to the village, such as those of George A. McAlpin, John Morrison, Theo. Cook, John C. Sherlock, Charles H. Law, Nathan E. Jordan, Alex. McDonald, and others,

whose homes add somewhat every year to our social advantages. Nearly every one adds something each season to embellish their grounds by planting not only that most valuable evergreen "the everlasting Norway," but they are commencing to plant the rarer spruces from California and Japan; the silver fir from the same regions, as well as our own, quite their equals in beauty: our hardy hemlock, truly called the American Deodar; that most valuable and noble tree, our white pine, with its twin sister, the almost weeping Himalayan pine, as well as a dozen others of real merit. Then, too, they are planting the exquisite cypress of Oregon, the Countess Retinosporas of Japan, with their varied shades of color, the cedars of Lebanon, the Deodar and African cedar. With these are blended the golden and silver yews, the American and Japanese mahonias, the most valuable of all evergreen shrubs. Even the Caucasian evergreen laurel will be planted here by the hundreds this season. The planting of such varieties with our native deciduous trees and shrubs indicates a decided advance in taste and study of arboriculture, a love for the suburban landscape, which may be made to compare with the pictures of Ruyadel, Hobbema, and Rousseau. Is it not of equal importance that a certain amount of this sort of home education should constitute one of the accomplishments to be expected as a matter of course in our families? Is it not a matter of interest to know whether the countless note of music was the voice of a thrush, the jay, or blackbird? Whether the daisy, the pansy, or the dandelion were one; whether the sweet shrub or the currant bush were alike? Whether the elm, the birch, the larch, the ash, the oak, the poplar, the lime, the hickory, were simply trees without names? Whether the lofty pines, the spruce, the firs, the cypress, the hemlock, were equally cedars, only one and all "just too lovely for anything?" Surely some cultivation in this direction would be of as much value, when acquired, as to know the latest figure in the lancers, or to possess the instinct which recognizes at a glance the creative genius of Worth in a new costume, or its facile imitation produced by the renowned modistes of the Queen City. It is gratifying to repeat that the village has always been distinguished for good order and the good character of its citizens. The day and night police are men of good morals and experience, intelligent in their activity, and have faithfully protected property and person against trespassers, tramps, and disorderly characters, and deserve your confidence for the faithful discharge of duty.

BEAUTIFYING RAILROAD LINES.

BY MARGID DIGRAM.

About a month ago, during a trip to Pittsburg over the Pennsylvania Central Railroad, I noticed that the company was fertilizing, in a very liberal way, the inclined banks by the sides of its

tracks, which had previously been sodded. Everywhere along the road there is a care exhibited in these matters of mere appearance, that is very commendable. That it is politic in a pecuniary sense, there can be no doubt whatever; for of two roads running between the same points, that one which is able to offer the greatest number of attractions to the eye, other things being equal, would certainly secure the greatest amount of passenger traffic.

The above road, I further observed, was also, in some places, planting shrubbery or creepers at the foot of steeply inclined gravelly banks, apparently as an experiment or as a temporary measure, the same to be superseded, probably, by sodding at some future time.

Just before noticing this fact, it had occurred to me that it would be an excellent idea to substitute shrubbery or trees, kept down by trimming, in place of the grass now used, as a complete cover for these sloping banks.

The rhododendron and other wild shrubs, the hemlock, poplar, beech, birch, hornbeam, catalpa, ailanthus, and some other trees, would be suitable for this purpose. A commencement might be made with poplar and catalpa, or ailanthus, as quick growers, and these could be followed, and the interspaces filled in, with any other or others desirable, all to be trimmed down to one uniform height, and the effect to be had from the shape and colors of the leaves. Still better effects would probably be found in an irregular surface, brought about by allowing of greater growth in some trees than in others, but still all to be kept low.

Another plan thought of was to cover the inclined bank with a screen of galvanized iron, held parallel to, and two or three inches from the ground surface, by deeply driven wooden pegs. These wooden pegs or stakes could at the same time support boards running lengthwise with the bank, the intention of which would be to prevent the formation of deep gullies in the loose earth.

The wire screen at the upper edges of the bank could be turned up so as to form a fence for the protection of the sloping portion below. At the foot of the screen creepers and climbers would be planted, such as the wistaria, woodbine, ampelopsis, etc., which would in time make a beautiful cover for the rough earth beneath the screen.

Still another suggestion is this: That the proposed wire screen should lay directly on the ground; that it should be pinned down by long

pegs driven well into the earth, and the meshes of the screen filled in with stones projecting from 3 to 6 inches (each mesh or opening holding a single stone), the whole to be covered with the English ivy, the wistaria, trumpet creeper, matrimony vine, etc.

The top of the bank could have a thorn hedge for the protection of the screen, and to give the whole a finished appearance.

EDITORIAL NOTES.

STANDARD ROSES.—It is well known that Standard Roses, as they are called in Europe, and which give so great a charm to European gardens,



are almost a failure in our country. But we are satisfied from some observation and continued experience that there is no reason why they should be such absolute failures as they are.

One thing has always to be borne in mind, that the drying influence of the atmosphere is much greater here than in Europe. In that country a bud is put into a rose stock at three or four feet from the ground, and the next spring the stock is cut back to just above the bud, when it at once pushes out growth and soon makes a head. It would not often do this in our country, because the air is too dry. It takes a pretty large mass of foliage at the top of the stock to pump up the moisture to supply the evaporation of the juices from the stock. All the leaves that could come out of a single bud in three months would not be sufficient. The stock becomes hide-bound—suckers come out from the root, and the plant soon dies. If a mass of foliage could be left on the stock, and the head of the improved kind formed gradually, it could probably be done.

In addition to this, the stocks for grafting could be planted in places clear from drying winds, and the stock itself selected for its ability to adapt itself to the peculiarities of our climate. Then selections from the hardy kinds would have to be made to keep the heads from dying back. The Prairie Roses would make exceptionally fine tree roses, as with their pendulous branches they would make very gracefully flowing heads.

We give annexed a cut of a climbing rose grafted into a tall stem, which we find in the French *Journal of Roses*, and which was taken from a specimen growing in a French cemetery, as showing how very pretty such a tree rose would be.

We feel quite sure that there is in the future success for the tree rose experiment in our country, and a good fortune for the man who will successfully inaugurate it.

AN INTERNATIONAL PARK.—The London *Times* suggests that any surplus in the Geneva award might be devoted to making an International Park of the Falls of Niagara and surroundings. Whether it is done in that way or not, it would be a grand thing for the United States and Canada to do together. The London *Garden* also has a plea for the International Park idea, and names Mr. Olmsted as the man to carry it out—a recommendation that would be heartily seconded in America.

A FLOWER SERMON.—The English papers tell us that "on Saturday, May 1st, the Rev. Canon Farrar preached a "flower" sermon at the Slough parish church, at which about 1000 children, chiefly belonging to the parochial

schools, were present. Every child brought a nosegay of flowers, and at the close of the service these were deposited on the steps of the chancel, the offerings being intended for the children who are inmates of the Westminster Hospital. The children of the Duke of St. Albans were among those who brought bouquets. The flowers formed a large bank and completely scented the chancel of the church. They were afterwards taken to London by Canon Farrar, and occupied several large packages. The Canon selected his text from Matthew vi., 26, "Consider the Lilies of the field, how they grow."

HYDRANGEA PANICULATA.—It will be remembered that last season Mr. Chas. H. Miller pointed out in our pages that the *Hydrangea paniculata*, and *H. p. grandiflora* were distinct varieties. We have heard this questioned since, notwithstanding the clear description Mr. Miller gave of their differences. More recently Mr. Hibberd has given an account of them in the *Gardener's Magazine*, which shows that in his country, as here, the differences are recognized. He says:—

This noble plant must be counted amongst the most valuable acquisitions to the garden of recent years. Its perfect hardiness adds a hundredfold to its value, as judged by its beauty and distinctness only. But in common with other members of the useful genus to which it belongs, it takes to pot culture kindly, and submits to be forced without deterioration of its splendid qualities of leaf and flower. As a plant adapted for isolation on grass turf there are but few to equal it, and it is not the less valuable for the mixed shrubbery, the entrance court, and for select positions where plants characterized by massiveness and brightness may have a place in the parterre.

There are two varieties. *Hydrangea paniculata* flowers earlier and produces smaller flowers than *H. p. grandiflora*. Moreover, the flowers of the first are of a pure white color, whereas those of the second are pinkish and fade into a purple tinge. In all respects, the first is more refined than the second, but which is the species and which the variety we do not pretend to say, because it is a grave question if in the end these terms are by any at present fully understood. Let it suffice then that we have two forms of a fine plant; both are noble and worthy of admiration, but the one with two names is to be preferred for pot culture and the one with three for planting out.

HYDRANGEA THUNBERGII, the handsomest of all the outdoor flowering shrubs now in bloom at Kew, is in fine condition by the side of the wall near the entrance to the Victoria-house. It is a very floriferous, neat-growing, dwarf shrub, not more than three feet in height. The numerous bar-

ren ray-florets, each composed of three or four orbicular sepals of a deep rosy-red color, the crowded fertile flowers tinged with purplish red, together with their bright blue anthers and filaments of the same shade, combine to render the plant very conspicuous. Siebold, in his *Flora Japonica*, informs us that the dry leaves make a very good tea, which on account of its sweet and agreeable taste is called "ama-tsja," which means "celestial tea." According to some authors, however, it owes that name to the fact that on the birthday of Sjaka (Buddha), which falls on the eighth day of the fourth month of the year, the idols of the founder of the Buddhist religion are with great solemnity washed in it.—*Gardeners' Chronicle*.

ELÆAGNUS LONGIPES.—This perfectly hardy and very desirable Japanese shrub, is at present in fine fruit in the Kew collection. A figure of it is given in the *Gardener's Chronicle* for 1873, p. 1014. It is a spreading evergreen bush about three feet high, with deep reddish-brown twigs and leaves, green above and silvery white beneath, the pendulous, long-stalked, transparent orange fruits, studded with small ferrugineous scales, being produced in clusters. Some of the Japanese varieties of this species are said to yield edible fruits; those, however, of the Kew plants are somewhat too acid and astringent to be pleasant.—*Gardener's Chronicle*.

AMERICAN TREES IN ENGLAND.—Nothing more amazes those familiar with the beauty of American trees than to note the indifference which English planters show for them. Through their parks and gardens we travel for days and see little beyond English Oak, English Ash, Sycamore, Linden, Elm, and a few others. Here and there a solitary American may be seen in great beauty, but they are rare. Of this neglect the London *Journal of Forestry* says:—

"The rich and beautiful trees and shrubs of North America have, from the time of the first explorers of the woods and prairies of that country till the present day, formed the theme of enthusiastic admiration by all lovers of the higher orders of vegetation who have visited that favored land. It has often surprised eminent men, who have seen the glorious display of flowers and foliage in the backwoods and rich savannahs of America, that so few of the many rare and beautiful trees there met with are apt to be found in cultivation in this country. With the solitary exception of the evergreen members of the coniferous family, no other tribe of American plants is represented in our woods and ornamental grounds to anything like the extent their

merits deserve. The oaks, ashes, maples, hickories, birches, elms, poplars, cherries, magnolias, tulip trees, catalpa, sumachs, hollies, dogwoods, thorns and spiræes, besides a host of others, equally useful or ornamental and perfectly hardy plants, claim far more of the notice of the planter than they have received within the past quarter of a century. No doubt many of them are to be found growing with perfect health in most of our large nurseries, but they are too often allowed to outgrow themselves, as nursery stock, from the sheer lack of purchasers. Their increase is thus curtailed and their cultivation neglected, when a better acquaintance with their graceful habits and matured beauties would cause quite a fervor for them, especially among ornamental planters."

STANDARD PLANTS.—Those who visited the grounds around Horticultural Hall in Fairmount Park, Philadelphia, last year, must have been struck with the singular beauty of the tree Lantanas, that is to say, plants trained up on one stem to a height of four or five feet, and then suffered to form a head. Of course such things look formal; but a garden is essentially a work of art, and it is by the judicious employment of these artificial looking things, that true garden art consists.



STANDARD FUCHSIAS.

There are numberless plants which have a striking effect when trained in this way. The Lemon Verbena is especially adapted to this sort

of culture, and any one who once possesses a plant so trained will never want to part with it. The *Gardening Illustrated* tells us that in England standards are sometimes made of the Fuchsia, and we fancy such plants must be very beautiful. Here is an illustration of one. The pendulous flowers must show well when so trained.

OLD-FASHIONED GARDENING.—"A Lady" writes to the *Gardener's Chronicle*: "For I think the love of flowers and of gardening grows with advancing age and inability to garden, and the same lady who as a girl thought it a great nuisance to have to cut off the dead Roses, or weed a flower-bed, will be glad enough to do it in her old age, and only long to be able to do more than her failing strength will admit of her attempting."

"An old lady naturally cares most for old-fashioned flowers; for, after all, the greatest charm flowers possess to the old is their association with bygone days. What charm can a bed of Pelargoniums boast that will compare with that of a root of Starch Hyacinth, if the latter grew in a corner of the kitchen garden of her father's parsonage? Or what cares she for the latest sport of a Chinese Primrose in comparison with the double lilac Primroses for which she used to hunt in the shrubbery in the early spring days of her childhood? So she tries to fill her garden with flowers which, to her, are living memories of her youth, and perhaps tries in vain to get the gardener to respect plants which he regards little better than rubbish. Many ladies will treasure for life some old-fashioned flower which is directly descended from an individual plant that belonged to a mother or sister long since departed; and the loss of a treasure of this kind, through the carelessness of a man hired for the day, is mourned almost as if it were a renewal of their original loss."

"Some ladies, stronger in mind and body than the generality of their sex, try to avoid all these dangers by dispensing altogether with the gardener. I know one instance in which an elderly lady, with the assistance of her maid, does all the work of her garden, even including the mowing of her grass-plot; and the consequence is that her little garden abounds with charming old-fashioned flowers that her fond hands have protected since the days when they were commoner than at present. Her garden is bounded on one side by an old wall, from every crevice of which spring lovely little Ferns, which she assured me were self-sown. It seemed as though they knew where to find protection from their

natural enemies, the Fern-hawkers, just as wild birds will come and build in any garden where nest-taking is absolutely prohibited.

"But instances like these are rare; and in spite of the present agitation in favor of teaching ladies to garden, I doubt whether the professional gardener will ever suffer much from female competition. I can but advise all ladies who care for their flowers to supervise the hired gardeners whom they are obliged to employ occasionally, and never to let their gardens be put in order while they are from home."

ABOUT HONEYSUCKLES.—A writer in the *London Garden* gives the following interesting sketch of the Honeysuckles known in English gardens. It includes the upright as well as the twining kinds. It is interesting, as enabling us to see that in some things we are not far behind English cultivators. The early variety from German gardens, known as *Magnavillæ*, they do not seem to know anything of. It is much larger than the *Pariclymenum*, and at least two weeks earlier than any of that section. There are upwards of eighty species in the temperate and warm regions of the North. This genus was named in honor of the German botanist Lonicer. There is great confusion in the nomenclature of the Japanese and Chinese Honeysuckles, arising probably from the fact that many of them are garden varieties.

1. *L. Periclymenum*. Honeysuckle or Woodbine.—This favorite indigenous shrub is surpassed by none of the exotic species in the profusion and fragrance of its flowers, but for brilliancy of coloring there are many superior. Flower-heads terminal, peduncled; upper leaves sessile; berry crimson. There are several improved varieties, including the Dutch, *L. Belgica*, the Oak-leaved, *L. quercifolia*, and late red, *L. serotina*, and one with variegated foliage of little merit.

2. *L. caprifolium*, syn. *Caprifolium italicum*.—This species strongly resembles the preceding in the color of its flowers, but the flower-head is sessile and the upper leaves connate. A native of the South of Europe.

3. *L. Etrusca*.—Flowers orange-yellow, capitate; heads pedunculate. Upper leaves connate, young ones hairy beneath. A native of the South of Europe, flowering in May, though not so freely as some.

4. *L. sempervirens*. Evergreen or Trumpet Honeysuckle.—This in its different varieties is one of the handsomest species in cultivation, bearing its scarlet inodorous flowers in great profusion for a considerable period in summer. The leaves are quite glabrous, oblong or rotundate, glaucous beneath, and persistent during the greater part of the winter. The variety named *Brönnii*, in which the flowers are of a brighter hue, is one of the best. It is a native of North America. *L. coccinea* and *L. pubescens* are allied species from the same country.

5. *L. brachypoda*.—One of the best evergreen species. Leaves oval or oblong, glabrous and shining, with short hairy petioles. Flowers medium size, in pairs, pale yellow, and very sweet-scented. There is a handsome and very desirable variety, named *aureo-reticulata*, in which the foliage is beautifully netted or variegated with yellow, with a mixture of red towards autumn. This is undoubtedly one of the most elegant variegated plants in cultivation, and like many others of its class a native of Japan. *L. japonica*, or *L. chinensis*, is a form of this species with more or less hairy leaves. [This is known as Hall's Honeysuckle in American gardens. ED. GARDENER'S MONTHLY.]

6. *L. flexuosa*.—Stems and young leaves hairy. Leaves ovate-lanceolate, purplish below when young. Flowers pink and yellow, in pairs, very fragrant. Japan.

7. *L. xylostemum*.—An erect species with small ovate or obovate hairy leaves and hairy yellow small flowers in axillary pairs. There are varieties with white, yellow, crimson, and black berries. A native of Europe, introduced in some parts of this country. *L. Tartarica* is an allied species with rosy-pink flowers in the common form, and yellow or white in the varieties.

8. *L. fragrantissima*.—This species is desirable as an early flowering plant. It puts forth its pure white highly odoriferous flowers in February before the leaves are developed. *L. Ständishii*, very near the preceding, has purple and white scented flowers. Both are natives of China.

LILIES.—It should be remembered that lilies should be re-planted as soon as the leaves are dead, if they need re-planting at all, and should not be held till spring before it is done; and that as a general thing they fail because the soil is too hot or dry. They love a rich, cool soil.

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

HOW TO GROW CHINESE PRIMROSES SUCCESSFULLY.

BY HENRY S. RUPP, SHIREMANSTOWN, PA.

As many florists in the culture of Primroses, and parties growing them for their own use, fail in their cultivation, it may be of importance to point out some of the causes. In many cases the seeds are worthless, being gathered before fully matured, or are injured in transit across the ocean. On account of this, and the high prices at which these seeds are usually sold, amateurs and many skilled florists, hesitate to venture in their culture. Many failures can be traced to having the plants too wet when once sprouted, or to being placed in a damp or too moist a situation. In this condition the young plants will damp off, or, if they survive, will make only a slender and sickly growth.

One of the most general mistakes is in placing the plants in too warm a location, and another in not giving sufficient light.

In following the directions given below, Chinese Primroses can be brought to a high state of perfection, and no danger of failure need be feared.

The soil for Primroses must be of the richest quality. Woods mold, muck, or sods well decayed, and about one-third sand, with a liberal supply of well rotted stable manure, is well suited for Primroses. Where this cannot be had, chip dirt, or any rich garden soil mixed with good manure, will do very well. The soil should be prepared at once, and kept out doors until there is danger of winter setting in, when it should be removed to the cellar. When wanted for use it should be finely pulverized and sifted, as the roots of the Primroses are all very fine and tender. They cannot penetrate hard lumps of earth.

The seed should be sown either in shallow seed-pans or small shallow boxes, filled about two inches with finely pulverized earth and sand. Sow the seeds thinly on this, press with the bottom of a small flower pot, and cover evenly about one-sixteenth to one-eighth of an inch; smooth off and press the earth down again; now cover quite thinly with moss. If no moss is at

hand, small blades of fine grass or old muslin will do, merely to keep the earth from drying out. Water at once with a fine rose sprinkler. This watering will in most instances be all that will be needed until the seeds are sprouted, though they must be looked after every day, and when the earth gets dry a light sprinkling given them. Set the boxes or pans in a cool place, and where the winds cannot reach them. As soon as the young plants make their appearance, the moss or other covering should be carefully removed. The earth during the day must be moist until they are fairly established; but care must now be taken in giving the proper supply of water; for if the earth should become very wet, the small plants will damp off, particularly if too wet during the night or in cloudy weather. It is safer never to water in the evening, even when the top soil is dry.

The boxes or pans may be covered with glass when no moss is used; but this requires careful watching, and considerable skill in their proper and safe management; for when the earth once becomes too much water-soaked, and remains so for a day or two at the time the seeds are sprouting, they will be all ruined. The glass should be lifted off occasionally, and the box placed in the sun for a short time. As soon as the young plants make their appearance, the glass should be taken off, except during the hottest part of the day.

The seed should be sown about the 1st, or not later than the 15th of July. The plants will then commence to bloom in the beginning of December, and continue in perfect flower until spring. If started earlier the flowers will not be so fine during the latter part of the winter, at the time when flowers are most appreciated.

About the middle of August, if the young plants have made good growth and strong roots, they should be transplanted into small pots (the smallest size), using the soil described above, pulverized and sifted. As soon as they are planted into these pots, give a pretty thorough watering and shade for a few days, then set the pots where there is plenty of light, not in the sun, and in a dry and as cool a place as can be found at this season of the year; by this treat-

ment they will grow stocky and produce large and bright colored flowers. It is safest in all the stages of growth to be fearful of giving too much water rather than too little. The earth should become very dry occasionally, even to the extent that the foliage begins to wilt. This is rather a benefit and in nowise an injury. Then give a copious supply of water, completely saturating all the earth in the pot; this will start the plants into new life and fresh vigor, and will keep them in a healthy condition, and prepare them for a much finer bloom than when kept wet at all times. The foliage should be frequently sprinkled, particularly the under sides of the leaves, to keep off the red spider. This should be continued until they commence blooming, but no water should be allowed on the flowers.

As soon as these small pots are filled with the roots, the plants must be shifted into other pots one size larger (3-inch). Do not disturb the roots in shifting from one pot into another; they are very small and are easily broken. Now give them water, and treat them as you did when in the small pots. When these pots become filled with roots, which can be seen by the lower leaves turning brown, they must be turned into larger pots. The lower leaves should now be cut off, and a small portion of the roots at the bottom of the pot may also be scraped off, and the plants set deeper than they stood before. For this planting use a four-inch pot. About this time the flower buds appear, and they seldom require larger pots the first season, though if the roots should become too much packed in the pots, and the lower leaves turn yellow, they must be planted into five-inch pots, or they will lose their vigor and produce smaller flowers.

At the time they are turned into the four-inch pots, or earlier, say 1st of November, they should be set in the place where they are wanted when in bloom; they then become adapted to the place, and will do very much better during the winter than when a new place is given them after they are in full bloom. When set on a window always put the Primroses next the glass. They thrive best in a cool place and a full share of light.

To keep Primroses over the summer, place the pots in a frame or under a tree; will need little attention during the summer. About the 1st of September take them out of the pots and cut nearly all the roots off, also the leaves; plant into smaller sized pots, and start them into growth; later shift them into four or five-inch

pots. The flowers are seldom as fine and large as they are on young plants.

HEATING GREENHOUSES.

BY S. F. TERWILLIGER, SARATOGA SPRINGS, N. Y.

In answer to W. D. Phillbrick in April No., I would make the following statements of greenhouses No. 1 and 2.

No. 1.	No. 2.
2000 feet glass.	500 feet glass.
550 " pipe.	100 " pipe.
14 " to peak.	9 " to peak.
4 " to eaves.	4 " to eaves.
60° temp.	60° temp.
Exposed to all winds.	Exposure same.

Both houses run north and south, but are 4½ feet apart, pipes being carried in boxes underground.

Boiler used Hitchings Corrugated, No. 16; average temperature winter '78 and '79, (5 mos.) 25°; 14 tons coal used; highest temperature 60°; lowest 20°; average temperature for '79 and '80, (5 mos.) 30 2-5°; highest 64°, lowest 10°; 13 tons coal used.

Would have used less coal this season had the weather been even, but it was so changeable you could not keep even fires, besides the winds have been very high. Think I've got in all the points needed, will allow him to draw his own conclusions, simply stating that I am satisfied.

FRAGRANT FLOWERS.

BY WALTER ELDER, PHILADELPHIA.

The pleasures of gardening, both indoors and in the open air, are greatly promoted by the introduction of sweet scented flowers. At the present time in many collections, the Olea fragrans, Daphne Indica, Orange and Lemon give grateful perfume; and how pleased we all are to meet these old favorites when in bloom. Later on the Gardenias, Rhyncospermums, &c., blossom, and by a little judgment it is easy to have some sweet scented plants in flower the whole season through. To those accustomed to walk through the woods in the spring-time, the pleasure derived from the fragrant flowers need not be told. And many of us know how positively beneficial to the invalid is a bunch of delicately scented flowers. It gives instant pleasure by its sweetness, and awakens a desire to be able to be about to enjoy nature's gifts more fully.

We cannot do without our gay colored flowers

for bedding and other purposes, but we ought to have our odoriferous plants more widely known.

In almost all catalogues we find plants grouped under various headings, such as "Ornamental foliage," "climbing," "variegated, &c." I think it would pay to add what many often look for, viz., sweet scented plants.

HENRY CANNEL GERANIUM.

BY A. MESTON, ANDOVER, MASS.

A few weeks ago I received a small plant of this geranium from Mansfield Milton, Youngstown, Ohio, it is now in bloom and is one of the finest semi-doubles I have seen; the color is a flaming scarlet with very large, individual flowers forming a bold truss thrown well above the foliage. The habit of the plant is compact, with a bright zone in the leaf; when this becomes better known it will be a general favorite.

EUCHARIS AMAZONICA.

BY MRS. M. D. W., YARMOUTH, MASS.

Two readers of the MONTHLY ask in the April No. for information respecting this lily.

"Is the Eucharis a bulb, and if so, when is the proper time to plant it?"

Ans. It is a bulb, and may be potted at any time.

"Can it be grown as a house plant.

Ans. Certainly, and that very easily.

"Mr. Tailby in his essay, said, Eucharis were as easily grown as potatoes. Anybody can grow potatoes, can anybody grow Eucharis?"

Ans. Yes, more easily than the farmers have grown potatoes since the ravages of that fearful scourge, the potato bug.

"I have always supposed it needed all the appliances of the hot-house, besides the most skillful treatment."

Ans. It no more requires a hot-house nor skillful management than a geranium. Mine is growing splendidly in my window box with Geraniums, Fuchsias and Heliotrope. It was bedded out all summer under a fruit tree in rather poor soil, so that it did not grow much. It is just as easily cultured as the Calla Lily. If potted in February or March, they will bloom usually in August, and continue to throw up flower spikes for several months. The best compost for them is turfy loam well chopped up, and leaf mould and sand, and a little bottom heat to stimulate rapid growth if desired. They require like the Calla, plenty of water, and

flourish best in a somewhat shaded position, i. e., not exposed to intense sunshine.

STEPHANOTIS FLORIBUNDA.

BY MR. C. E. PARNELL, GARDENER TO W. D. F. MANICE, QUEENS, L. I., N. Y.

In the GARDENER'S MONTHLY for April, 1880, page 106, Mrs. M. W., asks for information concerning the Stephanotis floribunda.

The Stephanotis is a native of Madagascar, and belongs to the natural order Asclepiadaceae. It has the milky juice of many of the individuals of this order, but the flowers are more attractive and much larger than is common in the group of plants composing it. The Stephanotis is an evergreen climber, with dark green shining leaves, from the axils of which are produced large clusters of cream white wax-like flowers of the most exquisite fragrance, and as their texture is very firm, they last for a considerable time. The Stephanotis loves a high temperature, and it can be grown in perfection in a house where a temperature of 75° to 80°, and a moist atmosphere can be maintained during the season of growth. It also requires to be kept cool and dry during the winter months, or while it is dormant, to flower it to perfection. When grown as a house plant, the Stephanotis is very subject to the attacks of the mealy bug, and on this account should be planted where it can be freely and frequently syringed. A compost composed of two-thirds ordinary potting soil and one-third well rotted stable manure, with a good portion of charcoal broken rather small, will answer very well. Care must be taken to give good drainage, as the Stephanotis soon suffers if water is allowed to stand around its roots.

For the open air during the Summer season, the Stephanotis is a desirable addition to the class of summer climbers; for this purpose the soil should be made rich and deep, by digging it to the depth of two feet at least, and working in a good portion of well rotted stable manure. The plants should be strong and healthy when planted out, which should not be done until all danger of frost is over, and after they become established they should be examined occasionally, and the young shoots trained and tied up to their place, and in the event of drought, a thorough watering is of benefit to them. If planted in a moist situation, and in a position fully exposed to the sun, the growth of the plant will be most luxuriant, and flowers will be produced in great abundance. The

Stephanotis can be propagated by cuttings or by layers, but as it does not strike easily from cuttings, layers will be preferable. In layering, cut a notch close under a joint, bend the part cut into a pot, and fill with soil. The layers will sometimes root in a few weeks, and at other times they require a month or two. As soon as they are well rooted, take them off and shift them as often as necessary. Such plants if well rooted and kept moderately dry, can be preserved in a common greenhouse through the winter. The Stephanotis is also propagated by cuttings of the ends of the flowering shoots and planting them in sand under a hand glass. When grown inside, an occasional washing of the leaves and stems of this plant is necessary to remove the insects to which it is unfortunately very subject.

EDITORIAL NOTES.

TEA ROSE COMTESSE RIGA DU PARC.—This is the subject of the colored plate in *Journal de Roses* for February. In reminds one somewhat of the famous old Triomphe de Luxemburg, which has nearly disappeared from cultivation now. It is, however, of a much darker shade than that.

WINDOW FLOWERS.—We all like brief, pithy paragraphs, telling a great deal in a few words. Here is a good specimen from the pen of Captain Franklin Howland, who does the "Farm and Home" column of the New Bedford *Evening News*:

"See that these beautiful objects have suitable care from day to day. Water them, keep off the vermin, wash them once a week or so, and occasionally give them a little guano in the water that is applied. Let them have all the sunlight possible, for most plants do not do well in the shade. Home is made beautiful by beautiful plants, and children as well as others are made the better by their cultivation and care.

BOUQUET MAKING.—The *Gardener's Chronicle* tells us: "We have heard a lady who was an accomplished flower painter lament that, although she could portray flowers on canvas in a way to elicit the approval of those competent to criticise, yet she could not arrange a bouquet or a vase of flowers either to please herself or any one else, as when she attempted anything of the kind the result was usually the production of something like a haystack. There can be no question that the ability to arrange foliage and flowers differing in form and

color so as to produce a combination that satisfies the eye of taste has some pretensions to be called an art, and it is an art that some individuals appear to possess instinctively, as even with very ordinary materials they can make a much more pleasing arrangement than others after an unlimited amount of practice are able to effect with the choicest flowers." And yet practice and experience has much to do with success in bouquet making. Any one who has seen the very tasteful work exhibited of late years at horticultural gatherings, and displayed on the tables of people of taste, and remembers the disgusting bunches of the past, will say that culture as well as native taste must enter into a good bouquet.

ANTHURIUM ANDREARIUM.—Those who know the great beauty of the Flamingo plant, Anthurium Scherzerianum, will be glad to know that a new beauty of this class has appeared under the above name that is likely to be quite as popular. A correspondent says: "The plant is an Aroid of tufted habit, with oblong, cordate, glabrous, leathery leaves, dark green above, paler beneath, and marked by comparatively few but prominent nerves; the leaf-stalks are ascending, cylindrically slender, and thickened at the top, the blade being attached, as it were, hinge-wise, so as to allow of varying positions, deflexed or spreading. The flower-stalk is double the length of the leaf-stalk.

"Undoubtedly the plant is one of the most brilliant and remarkable discoveries of recent times. Those who remember what Anthurium Scherzerianum was on its first introduction, and what it is now, are justified in looking forward to the career of the present plant as of quite exceptional importance. The flower lasts in beauty four months, its color is most brilliant, and the plant is of easy cultivation. It grows at an elevation of from 3,500 to 4,200 feet, and a temperature of from 60° to 70° would suit it best."

GLASS ROOFS.—*Gardener's Magazine* recommends that instead of slate or shingles, glass—thick glass that would resist hail—would do as well. Then we could have nice winter greenhouses at the top of our dwellings; and, no doubt, some contrivances could be introduced that would cool off the heat in summer weather.

PRICES OF ORCHIDS.—We have often pointed out to our readers, that one advantage of owning a collection of Orchids, is that they increase in

value with age, while many other plants become too large and unwieldy. Hence if the Orchid grower ever comes to grief he has some chance of finding some pecuniary salve in selling his plants. We briefly noted in our last that Mr. Tweddle's plants were sold, but had not at that time any particulars. Since then we find that the following are some of them: For *Angraecum sesquipedale*, \$135; *A. surperbum*, \$65; *A. carneum*, \$75; *Aerides odoratum*, \$27; *A. Fieldingii*, \$25; *Cattleya Mossiae*, \$28; *Cattleya gigas*, \$32; *C. labiata*, \$175; *C. Warscewiczii*, \$65; *C. speciosissima*, \$42; *Cælogyne cristata*, \$75; *Dendrobium Wardianum*, \$43; *D. densiflorum*, \$30; *Lælia elegans*, \$50; *Lycaste Skinnerii superba*, \$90; *Odontoglossum vexillarium*, \$100; *Oncidium Marshallii*, \$33; *Phalænopsis Luddemanniana*, \$65; *Saccolabium guttatum*

Holfordianum, \$200; *Vanda tricolor* *Corningii*, \$225; *Vanda suavis* (Veitch's variety), \$250." The prices are really low for good specimens; but we see these nineteen plants above brought in \$1,623.

SCRAPS AND QUERIES.

BEGONIA HYBRIDA.—C. inquires: Will some of the readers of the MONTHLY tell me who raised *Begonia hybrida multiflora*? In what year was it raised, and between what varieties is it a hybrid?

AZALEAS.—E. says: Will you or some of your readers please give me the names and descriptions of ten of the best and most distinct double varieties of *Azalea Indica*, also a list of the best and most distinct single varieties.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

It takes a long while for a good idea to become popular. The GARDENER'S MONTHLY long ago showed the advantage of rooting Strawberries in small pots for fall planting, and expressed an opinion that the trade would soon find an advantage in getting such plants ready and advertising them. The idea slept for a while, but now it has come into general practice. A pot-rooted plant is worth a dozen plants taken fresh from the plant, and will always bring a price proportioned to the labor of preparing it.

The thinning of fruit,—watching of insects, especially the borers in Dwarf Pears, Quince, Apple and Peach,—and summer-pruning are the main subjects of attention at this particular season. Where the soil is not very good, as may be noted by a weak growth of the trees, a surface manuring may be yet given with advantage. Every day's experience more decidedly shows the great advantages to the pomologist of this method of applying manure.

It used to be, and it is yet to a great extent, the recommendation of writers to cut away raspberry canes as soon as they have borne fruit; fruit-growers know better now. The slight shade

these old stalks afford, is agreeable to the new growth which is to bear next year.

In regard to training fruit trees, this is the most important month in the year. If a shoot appears where it is not wanted, pinch it off; this throws the sap into other directions where strength and vigor is desired. A good summer pruner does not leave much to be done in the winter time.

The time when currants and gooseberries mildew and drop their foliage is at hand. Some have found a mulch of salt hay to be good against these troubles, but in fact anything that cools the surface and thus helps to keep the atmosphere about the plants, is good. A heavy mulch of old corn stalks we have found to be excellent help to success in growing these fruits.

Preparation for the Celery crop is one of the chief matters in this department at this season. No plant, perhaps, requires a richer soil than this, and of all manures, well decayed cow dung is found to be the best. After so many trials with different ways of growing them, those who have their own gardens,—amateurs, for whom we write,—find that the old plan of sinking the plants in shallow pits is about the best. Trenches are dug about six inches deep, and three or four inches of manure then dug in, of which cow ma-

nure is the best. They can be watered better this way in dry weather, when in these trenches, and it is so much easier to fill the earth about them for blanching purposes than when grown on the level surface. Salt in moderate doses is usually a wonderful special fertilizer for the celery plant.

Late Cabbage is often planted in gardens between rows of potatoes, where it is an object to save space. Some fancy that the cabbage is better preserved in this way from the cabbage-fly, which they say prefers the potato; but on this point we are not sure. We do not think the cabbages do quite as well as when they have the whole ground to themselves; but of course a double crop could not be expected to be quite so fine.

Tomatoes trained to stakes give the sweetest fruit, and remain in bearing the longest; but many cultivators who grow for size and quantity only, believe they have the best results when growing them on the level ground.

For winter use, Beets are occasionally sown now, and also Cucumbers for pickling purposes; but not often; and at any rate it must be attended to early in the month.

The Lettuce is another cool-country plant. It can only be grown well in hot weather when in very rich and cool soil.

Bush Beans may also be sown for late crops. A very deep rich soil is necessary to tender, crisp pods. The Lima Bean will now be growing rapidly. It is time well spent to tie them up to poles as they grow. The poles should not be too high; about eight feet is enough. They commence to bear freely only when the top of the pole is reached.

In many amateurs' gardens late Peas are valued. It is essential that they be planted in the coolest part of the ground. The pea is a cool-country plant, and when it has to grow in warm weather, it mildews. The Marrowfat class are usually employed for late crops. They need support. All peas grow better and produce more when grown to stakes.

COMMUNICATIONS.

PROGRESS IN NEW FRUITS.

BY P. BARRY.

Under this heading, in the May No. of the GARDENER'S MONTHLY, Mr. Chas. Downing refers to a statement said to have been made by me in

regard to the changes that had taken place during the last quarter of a century. Mr. Downing says I was either mistaken or incorrectly reported.

The same statement has also been criticised in THE GARDEN (English) a short time ago by Mr. C. M. Hovey, of Boston.

I think I was incorrectly reported. I spoke, or intended to speak, of half a century. I held in my hand, at the Pomological meeting at Rochester last September, a catalogue of fruits of Wm. Prince, of Flushing, printed in 1824, and to this my remarks referred. I alluded particularly to Pears and Grapes.

That catalogue contained the names of 108 varieties of Pears, only one of which, the Seckel, is now in general cultivation. Of Grapes 16 varieties, of which four are now in cultivation, Isabella, Catawba, Norton's Virginia and Scuppernon. A nursery catalogue of 1880, now before me, contains the names of 72 varieties of native Grapes, 35 black, 20 red or purple and 17 white, and these do not, by any means, exhaust the list.

Of 70 varieties of Peaches in the old catalogue, several are still in cultivation to a limited extent, but scarcely one of the popular varieties of the present day are found there.

Coxe's work on Fruits was published in 1816. In it we find the names of 67 varieties of Pears, only two of which are in modern collections, and only one that can be said to be in general cultivation, viz., the Seckel.

There can be no doubt but that great progress has been made in the introduction of new varieties of fruits during the past half century, and this is what I referred to.

A word or two on other matters. At this moment, May 14, the fruit trees are all in blossom at once, and promise an abundant crop, but we are not yet out of danger. There has been renewed activity in the nursery trade this spring, an indication of the return of general prosperity.

FACTS ARE STUBBORN THINGS.

BY WM. T. HARDING, UPPER SANDUSKY, OHIO.

Under the heading of "Editorial Notes," in the March number of the MONTHLY, page 79, I see "the God of nature," man, has something to say against slitting the bark of trees. With equal propriety, the pseudo-philosopher might have insisted the trees would properly prune themselves, if it was necessary, as men sometimes

think it is. Early initiated, as the writer was when a boy, into the practical order of the pruning-knife and spade, he has since worked out many a problem "the God of nature," seemingly, left him to solve. And what in the course of time I have physically or mechanically done for the benefit of horticulture and arboriculture, which nature left undone, are visible facts which nobody can deny. That Divine Providence intended the members of the gardening fraternity to do for trees what they could not do for themselves, is evident, from His having put the first made man in a garden to look after them. And thus, from ante-fleagian times until now, the pruning-hook has never ceased from cutting and trimming trees. The conditions, Mr. Coleman mentions, have often come under my notice, and, as he sensibly advises doing, have many times done with marked advantage.

I remember some time ago another wisacre gave his opinion about the same subject. His remarks, if not exactly foolish, were at least somewhat funny. The sceptical gentleman I allude to thought it would be as sensible an act to make longitudinal incisions in his leg, as it would be in the bark of a tree. Whether he had a timber leg, or a wooden head, or both, he made no mention. But I strongly suspect there was something ligneous about the superstructure or he would have known it was the trunk, instead of the limbs, which were to be bark-slit.

In Japan, we are informed, it was no unusual thing for a man to slit up his trunk. But they had another designation for the operation—Hari-Kari is the name. That the effects of slitting would vary much on the trunks of trees and man, even Mr. Skeptical is well aware. But as neither he nor any one else in this country is likely to try the experiment, life being too short and business too pressing, let us turn to Shakspeare, and learn what they did in his day.

See King Richard II., Act 3, and hear what the honest and old gardener said when lamenting the fate of his fallen king:

"And Bolingbrooke
Hath seized the wasteful king.—Oh! what a pity
it is,
That he had not trim'd and dress'd his land,
As we this garden. We at this time of year
Do wound the bark, the skin of our fruit trees;
Lest being over-proud with sap and blood,
With too much riches it confound itself:
Had he done so to great and growing men,
They might have lived to bear, and taste
Their fruits of duty. All superfluous branches
We lop away, that bearing boughs may live:

Had he done so, himself had borne the crown,
Which waste of idle hours hath quite thrown
down."

As the philosophical horticulturist is supposed to have "wound the bark, the skin of our forest trees," sometime between June, 1877, and September, 1899, it must be admitted he was wise after his generation. Even from so long ago as Shakspeare's time, between 1564 and 1616, the operation was performed by practical men, just as it is by skillful orchardists now. It seems to me that while I continue to admire the wisdom of King Richard's ancient bark-slitter, it would be proper to exclaim, "Bravo! Old Gardener."

THE PEACH APHIS.

BY D. S. MYER, BRIDGEVILLE, DEL.

I notice you frequently write about the Peach Yellows. We know but little about the yellows here; in fact I do not know that I can say I could certainly point out one single case of the yellows.

I will relate the following, thinking it may be of some interest to your numerous readers. Some six or eight years ago the Peach Aphis visited us in unprecedented numbers, destroying most of the young trees one year planted, and severely injuring some two year and older trees. The effects on the trees visited by them was plainly visible, the leaves turning yellow and not having anything like their usual size; many trees dying outright, others so weakened as to be entirely worthless. That season, at the time that Hale's Early Peach was beginning to ripen, the Milford, Del. Fruit Growers' Society invited a number of the Farmers' Club of New York and some Pennsylvania Profs. on Insects; also the late David Petitt of N. J. (said to be the best farmer of N. J.). My memory fails to give the names of the prominent doctors who met at Milford. I was invited to meet with these gentlemen and the Fruit Society, so I prepared myself as best I could. Taking a spade and grubbing-hoe I marched off first and dug up two or three of the two year peach trees, root and branch, that had been covered literally black with the Peach Aphis in the spring, but had disappeared on approach of hot weather, letting some of the branches be on with the leaves, and the roots as left by the Aphis. Taking the peach tree branches with me, when I was called upon to give my store of information, I presented the

tree aforementioned, asking the doctors what was the matter with those trees. When to my surprise David Petitt of N. J., pronounced them genuine cases of yellows.

I can tell you it caused no little merriment in the crowded room of Del. Fruit Growers. Not one ever hearing, much less seeing a case of genuine yellows, as we have learned of it through books and papers in other sections.

I explained how the trees I exhibited did come in that condition, and further all I knew about the Aphis from careful observation. I have read all the information I can get on this insect. I must say that even Prof. Riley does not say much about its habits, &c. Of all insects I ever saw, it is the most wonderful.

I have dug up peach roots that were six to twelve inches deep in quite wet red soil, when the surface of the ground was cold, almost frosted. Thousands, yes millions, almost, in some cases were on the roots, the smallest so small as to be hardly seen with the naked eye, yet brought under a microscope, even the small ones were awful looking sap suckers. I have placed roots covered with these insects in bottles of cold water almost to freezing, leaving them in it for thirty-six hours, removed them, placed in warm sunny place, and in half an hour many would creep off; but after exposing them forty-eight hours all appeared dead. I should like to ask some of you doctors how they propagate so rapidly so deep in the soil; appear to do so down even six to nine inches deep, and when weather moderates, come right up, suck out the starting buds, hundreds and thousands on a single bud. I once used tar to save a lot of young valuable stock, the enemy came so strong out of the ground as to cover the tar and bridge over, and make the stocks appear all black. One week finished up the most vigorous stocks. Mild winters and followed by wet, cold springs, suit this great enemy of the peach. Mr. Aphis appears to glory in slight frosts; even a freeze don't budge him; down toward zero fixes him. If soil is frozen deep for a long time in winter they are not apt to do much damage the following spring.

Repeated doses of the foul stuff tobacco gives them enough, but then you have to wait until they appear on the surface, while many more are sucking the life out of the roots that you can't reach.

Aphis can't stand clear, hot sunshiny days; in June and July they usually all disappear, but ah! what a mark they leave in their track.

PROTECTING YOUNG APPLE TREES FROM BORERS.

BY JAMES M. HAYES, DOVER, N. H.

The apple tree borer (*Saperda bivittata*) is the most destructive insect in our young apple orchards. More trees are killed by this insect in New Hampshire than in any other way. In large trees there seems to be no better method of destroying them than by using a knife and wire. But with small trees that are just set or are but a few years old, the following method of protection was adopted by a friend of ours having a young orchard infested with these insects, which he found quite successful in keeping them away.

Having some strips of wire screening such as are used for windows, he put them around his trees, bringing the ends together and fastening them as stove pipe is fastened, leaving a space between the tree and screening of about an inch, which was filled with waste cotton. This will last four or five years and proves an effectual remedy.

THE SWEET PIPPIN APPLE.

BY J. G. YOUNGKEN, RICHLANDTOWN, BUCKS CO., PA.

I write to you in regard to a seedling apple that has been in cultivation about eighty years, and has some very valuable qualities. So I send you a specimen of it, and would like to have your opinion about it. I think the apple has some very valuable properties, and thought it was my duty to bring it to notice. The Sweet Pippin apple originated on the farm of the late Samuel Minninger, of Richland Township, Bucks Co., Pa. The trees are straggling growers, somewhat spreading or drooping. They form medium sized heads; wood grayish. They are very hardy and profuse bearers every other year, and the apples adhere firmly to the trees, do not drop off like most apples do, and they will not be blown off by hard winds and storms. They are in season from December to June, will ripen up like oranges, will not wilt and shrivel like most apples do, and in June they will be just as sound as in the fall, and as yellow as oranges. I saw eighty bushels on a heap the other day, and you could not see a specked one nor a rotten one on the heap. Young trees in the nursery ought to be top grafted to form good trees.

[The true value of an apple, or for the matter of that, any fruit, depends on a great many things more than any editor can find out by examining a specimen of the fruit in his office. All we can say is that the specimen sent by Mr.

Youngken is not of the highest flavor, but is a fair fruit in every particular. If all its other characters come out in every case as Mr. Youngken finds them, it might be worth introducing, though we always dread the prospects of any new addition to the already formidable list of fruits.—Ed. G. M.]

EDITORIAL NOTES.

A FURORE IN NEW GRAPES.—A gentleman in the East advertised for the first time, a year ago, a new Grape; and now we read in the annual address of a distinguished pomologist, that said grape is "making a 'furore' in Ohio."

If this statement had been made in some advertisement it would have been excusable, for some advertisers—not all by any means—cannot avoid using language which means just nothing to most people whatever it may mean to themselves. But it reads queer from a cool headed president of a pomological convention. The idea that the few berries that would be obtained from a little plant set out but a few months before, is to make a "furore" throughout a whole State, is suggestive of a more general roar than the "few-roar."

BLIGHT, MILDEW AND RUST.—Mr. R. P. Speer has in the Cedar Falls (Iowa) *Gazette* a very exhaustive paper on the above topics. He believes fruit trees never blight seriously except after remarkably warm, damp weather. Mr. Speer believes that fungi are connected with the diseases named; but that previous circumstances unfavorable to vital power, aid the germination of the fungoid spores.

AMERICAN GRAPE VINES AND THE PHYLLOXERA.—The *Gardener's Chronicle* says: "As to the powers of resistance to the grape-louse offered by certain of these American varieties (for this precious faculty is not possessed by all), there is no doubt whatever. The fact has been proved in various districts in France, and in particular in one instance, where out of 150,000 cuttings which were put in to replace some vines destroyed by the grape-louse, none are now left, except a few American varieties planted by accident."

"M. Foex has set himself to discover the reasons, for this comparative immunity on the part of the American vines, which he attributes to the structure of their tissues. The roots of

the American varieties are stated to have their tissues of a denser and more woody character than those of the European varieties; their medullary rays (silver grain) are also narrower and more numerous. The puncture of the Phylloxera excites a local irritation and swelling which does not pass far beyond the original point of injury, and the traces of which soon disappear. Of course there are variations as to these points according to the particular kind of grape and the nature of the soil."

Investigations on this side of the Atlantic have shown that the American vines are just as subject to attack as the foreign varieties. The writer of this has seen roots of Clinton as densely granulated as ever he has seen in the case of any variety. It is not that the American species are less liable to attack, but they suffer less from the attack. And the reason for this seems to be in the different rooting habits of the species. A careful examination of those liable to injury from the insect attack, shows them to have few long and slender roots; while the other, like Clinton and allies, make innumerable branching fibres. One rootlet is no sooner injured, and its growth checked, than it sends out many more from the main root above. In this easy rooting power lies its strength.

LARGE JAPAN PERSIMMON.—The largest fruit matured in California so far, measures about eleven inches round, and two together weighed a pound and a half.

CHERRY—NE PLUS ULTRA.—Mr. Charles Arnold regards this as a great acquisition. It has a strong resemblance to Napoleon Bigarreau, and not superior to it. It was raised by Mr. John Mosely, of Goodrich, Ontario.

APPLES FOR AUSTRALIA.—Notwithstanding the beautiful display of apples made by Australia at the Centennial Exposition, California seems inclined to try the export of American fruit to that distant land. Delong & Co. made a large shipment last fall—Roxbury Russetts and Tulpehockens'. ("Talpahawkins," our correspondent says.)

RIVERS' EARLY SILVER PEACH.—The *Florist and Pomologist* gives a colored plate of this variety. It seems larger than any of the early Peaches of Mr. Rivers as known in this country. The plate represents the fruit as three inches across. It was raised by the late Thomas Rivers in 1859, from seed of the White Nectarine.

THE MANN APPLE.—The tree is full as hardy as the Duchess of Oldenburgh, and the fruit will keep as long as the Roxbury Russet. Mr. Moody, of Lockport, has kept the fruit in good order until the first of July in an ordinary cellar.

Downing describes the fruit as follows, viz.:

"Fruit medium to large, roundish oblate, nearly regular; skin deep yellow when fully ripe, often with a shade of brownish red where exposed, and thickly sprinkled with light gray dots, a few being areole; stalk short, rather small; cavity medium or quite large, sometimes slightly corrugated; flesh yellowish, half fine, half tender, juicy, mild, pleasant sub-acid. Good to very good."

THE DURN STRAWBERRY.—This is an Alpine Strawberry raised in France, and bearing all the year round. It is believed to be one of the best of the Alpines. It must be remembered that Alpines are scarcely worth cultivating in low elevations or warm countries. As the name implies they are adapted only to cool or special culture.

THE PHYLLOXERA IN EUROPE.—In order to guard against the introduction of the Phylloxera, Germany, Austria, Spain, France, Italy and Portugal have entered into a joint convention and "resolved" on the most absurd enactment. It is remarkable that while we are continually hesitating about what to do, while wondering what the mother countries will say about us, they offer us such silly examples. The London *Gardener's Chronicle* likens the results of this convention to the man who, with one foot frozen, burns the other.

SCRAPS AND QUERIES.

PEACHES.—On May 11th, came to hand some forced Peaches from Mr. Charles Black, Hightstown, N. J. Saunders, Amsden and Wilder, were all about the same size, about 2½ ounces in weight, very much alike in general appearance, but Saunders' dark rose, Amsden lighter, and Wilder paler than the rest. There was also a Hale's, which weighed 3½ ounces, approaching double the size, but the quality was much inferior to the other three. Forced peaches are, rarely of the highest excellence in eating qualities. In this case few would think highly of the Hale's, but the other three were rich and juicy, and certainly enjoyable. The Hale's is a pure

freestone, and this is some advantage; the others being clings are at a disadvantage for a table fruit. They are not so completely clings as some of the late kinds, but they must be classed with cling-stone peaches. There is room yet for some one to make a fortune on a first-class early freestone peach.

Since writing the above, the following has been received: "We send you a box containing four Peaches, grown in our orchard house (formerly belonging to Isaac Pullen), one each of Hale's, Amsden, Saunders and Wilder's. The Hale's Early is forced up by girdling the branch on which it grew; all others on the same tree are very green and not over half grown. The Amsden and Saunders are just as they grew and ripened. We picked the first (Amsden) on the 30th of April. Alexander is so similar in every respect that it is impossible to detect any difference. We began to force them about January 1st, and the early peaches maintain their character of earliness full as much as out-door. The Amsden, Alexander and Saunders are fully twenty days in advance of Hale's Early. By girdling the branches below the peaches, they are forced very much both in size and time of ripening, as you will see by the specimen sent. All other Hale's in the house are small and green yet, and will take ten days or two weeks to ripen. The Saunders sent is below the average size, the Amsden a little above as grown in our house. We send you these, thinking ripe Peaches not yet plenty, and to show the effect of our experiment of girdling upon the Hale's Early."

SWAMP MUCK.—B. H., Woodbury, N. J., sends in the following, and asks what we think of it: "Some time ago we remarked that an acre of swamp muck of good quality, three feet deep, was actually worth \$25,000 (twenty-five thousand dollars). No doubt such a statement is surprising—so was the statement of Dr. Lawes, of England, that a ton of bran fed to cows returned more than its cost, in manure. Swamp muck free from sand, contains 2 per cent. or 40 lbs. of nitrogen to the ton. Nitrogen is worth in the market 25 cents a pound—so that a ton of swamp muck is actually worth \$10 for the nitrogen in it. All that is needed is to work up the muck so as to make the nitrogen available. An acre of swamp muck three feet deep contains 2500 tons, and would require eight months to draw out at ten loads per day. Few persons realize the value of the fertilizing elements of common waste matter

which lie under their feet, and the innumerable tons of matter that may be available for fertilizing purposes, and that much of the idle and neglected materials represent a vast amount of wealth."—*American Agriculturist*, April, 1880.

[We quite agree with the *Agriculturist* that all that is needed is to work up the muck so as to make the nitrogen available. But it is this working up that is the bother. In the writer's ex-

perience it would cost about \$30,000 to work up the \$25,000 available, and the effort to utilize it has been abandoned. If any one can give in detail profitable methods of utilizing swamp muck, it would be doing excellent service.—Ed. G. M.]

SMITH'S IMPROVED GOOSEBERRY.—P. says: "Will some of the readers of the MONTHLY give their experience with Smith's Improved Gooseberry. Is it free from mildew?"

FORESTRY.

COMMUNICATIONS.

AMERICAN FORESTRY.

An excellent account of some of the good work being done in American Forestry appeared recently in the Boston *Herald*, and which we give our readers below. We might take exception to some of the ideas advanced, but on the whole, the paper will meet with general approval. We may, however, note there is no actual necessity for the feeling that when a forest is planted it is only for one's children, for there is no need of waiting till one is past middle age before making profit from a forest. We take the ground that a judiciously managed forest may come into profit in ten years; and by profit we mean that it shall yield a handsome sum over all expenses, interest on capital invested included.

"There are probably few who better appreciate the advantages of neighboring forests than the prairie farmer of the West, whose lone dwelling stands exposed, almost as much as a ship at sea, to the full, fierce sweep of the winds that blow across the wide, level expanse, with nothing in their track to break their force. In mid-winter, while his house is half buried in the snow drifts and seems but a mound in the blank waste, he sits by his corn-burning fire and thinks how fine and comfortable it would be if, twenty or thirty years before, when he first settled there, he had only planted a few of his hundreds of broad acres with trees, and his home now lay warm and calm on the leeward side of a fine piece of woodland as undisturbed by the frigid northwester as if it were not blowing. His gardens, too, would not be parched and baked to death by the first dry wind of summer, and his fruit not shaken from the boughs nor blasted. And, reflecting on the high price of lumber, and the scarcity of fuel that compelled him to burn his grain, he would

see what a profitable investment it would have been. A few had the forethought to take such a course, and its wisdom is now so manifest that throughout the prairie States there is a universal interest in the subject of tree-planting, although its importance, as a means of affording shelter and supplying the rapidly increasing population with fuel, timber, etc., has been felt by many since their first settlement. By those able to look ahead to the future development of these States since the enormous growth of the railroad system there, consuming as it does every year an immense number of ties, etc., the necessity has been more keenly felt. The new railroads built in the treeless States in 1879 required over ten million ties in their construction. It will be seen that an immense consumption of forests is caused by railroads alone. Before the great panic of 1873, several attempts at tree-planting had been made by railroad companies, but none were successful, owing to bad management, an improper selection of trees, neglect and fire, the result of the trees being planted too near the line of the railroads. But, lately, an earnest has been given of the great value of the Harvard Arboretum at West Roxbury to the material interests of the country. Within the last two years, under the inspiration of that institution, more systematic attempts at railroad tree-planting have been made in Kansas by the Fort Scott & Gulf Railroad Company, several hundred acres having already been planted; and, during the present winter, a Boston capitalist has contracted for the planting of 560 acres of prairie land in eastern Kansas. This contract is made with Messrs. Robert Douglas & Sons, of Waukegan, Ill., the largest and most successful raisers of forest-tree seedlings in the United States, and is peculiar and novel in its provisions. They agree, at a certain price per acre,—which would differ, of course, with different conditions and location,—to break and plow the land, prepare it for planting, plant not less than 2720 trees to the acre, and cultivate these until they shade the ground and so require no further cultivation, to keep down the weeds and strong natural grasses—the

great drawback to all prairie tree-planting. At the end of this time, probably in three or four years from the time of planting, the plantation will be delivered over to the owner, one cent a tree being deducted from the final payment for every tree less than 2000 to the acre delivered, only trees at least six feet high at the time of delivery being counted. The advantage of this plan, which is the one also adopted by the Fort Scott Railroad, is that the trees will be carefully planted and attended to by experienced men, for whose interest it will be to use the best plants, and to cultivate and care for them in the best manner, so as to be able to deliver the greatest number of trees in the shortest possible time, that they may get quick returns for the money invested in plants, planting, etc. Any plantation in which the trees are six feet high, and in which the ground is so shaded that weeds and stray natural grasses cannot grow, is safe, and will require no further attention until the time comes for thinning out the trees for fence posts, etc. The plan relieves the owner of the great risk always attending the early years of a plantation, and makes his investment practically safe. This plantation of 560 acres is to consist of 300 acres of the western catalpa, 200 acres of ailanthus, and 60 acres which will serve as an experimental ground on which will be tested trees of several varieties, to be selected by the director of the Harvard Arboretum, Prof. Sargent. The western catalpa, a native of the low lands bordering the lower Ohio, and the banks of the Mississippi in Missouri, Kentucky and Tennessee, is a rapidly-growing tree, easily cultivated, and producing timber, which, although soft, is almost indestructible when placed in the ground, and, therefore, of the greatest value for fence-posts, railway ties and similar uses. The ailanthus will grow with great rapidity anywhere, where the climate is not too cold for it, and in spite of its wonderfully quick growth, produces hard, heavy timber valuable for fuel, ties, cabinet work, or almost every purpose for which wood is used.

"It is believed that this plantation will soon lead to the formation of others, both by the railroad companies and by individuals, or corporations chartered to plant and own timber lands in the prairie States. Eventually, a great deal of capital will be invested in this way. The returns will be slow, and a man investing thus should consider that he is doing it for his children. But when the returns do come they will be enormous, even at the present prices of lumber, and it must be remembered that, before a crop of trees planted now can be harvested, the price of ties and other forest products will be more than doubled in the Western States. An encouraging fact, and one which shows that public attention is being directed to the importance of providing for the future demand of such things is, that the Iron Mountain Railroad Company, which runs for hundreds of miles through a heavily timbered region, and possesses in its own lands some of the finest white oak on the continent, has also made a contract with the Messrs. Douglas to plant near Charleston, Mo., 100 acres of western catalpa as

an experiment. They do this because catalpa ties have stood on their road entirely unaffected by decay during the last twelve years, and because this tree is so valued by the farmers for fence posts that it is already practically exterminated in Missouri, and so not to be procured for ties, although the superintendent of the railroad is willing to pay three times as much as for the best white oak ties. If the planting of trees is good policy for a railroad running through a heavily timbered country like Missouri and Arkansas, it will certainly pay for roads in Iowa, Nebraska, Minnesota and Kansas to do the same. Messrs. Douglas have adopted another important measure at the instigation of the director of the Arboretum, in order to facilitate the planting of trees by farmers and others of small means who have always found it difficult to procure a few trees on reasonable terms, is the sending out of dollar packages by mail, post-paid, and containing each from seventy-five to one hundred forest trees. There is little profit in this branch of the business directly, as the postage and the cost of packing amounts to about fifty cents, but it helps foster a taste for tree-planting, and gets people into the habit of planting a few trees every year. They will gradually become imbued with the desire to plant, and so will send larger orders. At any rate, whether there is, or is not, profit to the grower, people are thus enabled to obtain the best trees at the lowest rates and in small quantities. It is only necessary to send a dollar to the Messrs. Douglas, and the sender will receive by mail a package of 100 trees, of any kind named in their circular, which explains this peculiar feature. The choice of trees include the catalpa and ailanthus, already mentioned, the white ash, Scotch pine and many other valuable woods. The experiment was made last year for the first time, and 75,000 trees were sent out in this way, of which not a single one, it is said, failed to reach its destination in perfect condition. The plan was so successful that this year it is expected that several million trees will thus be distributed over the country, not only all over the New England and Western States, but in large quantities in Texas, New Mexico, California, Oregon and Utah. The advantage is very great to small farmers living in remote portions of the country where freight and express charges are excessive, and tree-planting cannot fail to be encouraged among a class of men who will be greatly benefited by it, and who, without such a system, would be practically outside the possibility of procuring valuable trees. If every farmer in this country would consider it a part of his routine work to plant annually 100 trees, the question of the future timber supply of the United States would be greatly simplified, and this plan puts it within the reach of all to do so if they choose.

"The importance of tree planting is now recognized by several of the Western States, which offer bounties for the best lots of woodland, and exempt land planted with trees from taxation for a considerable term of years. In this state, the Massachusetts Society for the Promotion of Agriculture offers fine premiums for the

best acres of woodland of various kinds and stages of growth

"The secretary of the Connecticut State board of education, Hon. B. G. Northrop, who is an enthusiastic arboriculturist, in stating that in Connecticut, in the last ten years, over \$300,000 have been expended annually in building and repairing school-houses, says: "Wise and necessary, as was this expenditure, had one hundredth part of this sum been spent annually in planting trees and adorning the school-grounds, a still better result would have been accomplished in cultivating the tastes of our youth, leading them to study and admire our noble trees, and realize that they are the grandest and most beautiful

products of nature, and form the finest drapery that adorns this earth in all lands. Thus taught, they will wish to plant and protect trees, and find in their own happy experience that there is a peculiar pleasure in their parentage, whether forest, fruit or ornamental—a pleasure that never cloy, but grows with their growth. Such offspring they will watch with pride, as every year new beauties appear. Like grateful children, they bring rich filial returns, and compensate a thousand-fold for the trouble they cost. This love of trees early implanted in the school and fostered in the home, will be sure to make our youth practical arborists."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

FERNS OF SOUTHERN CALIFORNIA.

BY S. B. PARISH, SAN BERNARDINO, CAL.

[Concluded from page 181.]

By this time we have ascended the ravine far enough to find a few oaks and pines on the steep sides, mingling their shade with that of the alders and cottonwood which border the stream. Here and there on these acclivities are seen the sturdy clumps of two shield ferns, *Aspidium rigidum* var. *argutum* and *A. munitum*. Both of them prefer a gravelly soil, and, although requiring very little moisture, keep bright and fresh the whole year. The ample, wide-based bipinnate fronds of the former are usually strongly curving, and about three feet in length; the other is of the same height, but more rigid in habit, and its narrow lanceolate fronds are simply pinnate, with auricled leaflets. High in the mountains has been found a rare variety of this fern (*A. munitum* var. *imbricans*).

Our canyon now becomes narrower, and shut in by high rock walls, and we come to a place where the little stream leaps down a precipice fifty or even a hundred feet high; the thick pines help to shut out the rays of the sun, and the water broken into spray, drenches the rocks with a perpetual mist, and maintains a refreshing

coolness. Look up and see how the whole face of the cliff is fluttering with feathery maiden hair. Every crevice is full of them; here is *Adiantum pedatum*,* its shaft of shining ebony bearing aloft a broad crescent frond of the most delicate texture and color; here *A. emarginatum* and *A. Cappillus-veneris* wore their long drooping plumes, and with them are mingled the beautiful *Cystopteris fragilis*, its fronds of tender green, set off with black fruit-dots, and sporting into an infinite variety of form. A little away from the mist of the fall the majestic *Woodwardia* (*W. radicans* var. *Americana*) curves its grand fronds and dips them into the pool below. These are five or six, and even ten feet in length, and have a tropical luxuriance that forms a beautiful contrast to the grace of the delicate ferns above.

If we climb around the falls and follow our stream to its source, we will find, rooted in the miry black soil, the handsome Lady Fern (*Asplenium Filix-femina*), so widely distributed through the country. Not so high up there is occasionally found another Spleenwort (*A. Trichomanes* var. *incisum*), its small dark-green pinnate fronds clustered at the base of some dry crag. It is quite rare.

The ferns already mentioned, except those noted as rare, are very generally distributed, and may be confidently sought whenever there is

*This fern is sometimes said to be deciduous, but it seems with us to be evergreen.

found the conditions suited to their growth. But there are others more restricted in their distribution, and some are even confined to a single tract a few acres in extent. They belong to the drought-resisting genera *Cheilanthes* and *Notholaena*, which in summer become entirely dry, their curious fronds rolled up into compact balls, and showing the colored powders, the scales, or the felted hairs of the different species. But although so dry that they crumble in the fingers, and the roots snap like dry twigs, yet they are not dead, and at the first shower the old fronds unroll bright and fresh, and new ones begin to push up around them. The writer has taken them up when in the dry stage and kept them hung in an open shed for six months, and when planted they started into vigorous growth.

One of the commonest of them is *Cheilanthes Fendleri*; its lanceolate frond, six or eight inches long by two wide, is subdivided into minute segments, bright green on the face, and on the back covered with an abundant coating of chaffy scales, white on the young fronds, and passing through different shades of brown until it becomes ashy-grey on the old ones. In some places it is quite abundant, growing in the crevices of partially shaded rocks. Nearer the sea coast there are two somewhat similar species, *C. myriophylla* and *C. Clevelandii*. There also grows the most beautiful of the genus, the Lace Fern (*C. Californica*), whose well proportioned triangular frond, supported on a polished brown stipe, is divided and subdivided into thread-like segments. It is remarkable in being quite free from the hairs or other appendages so common in members of this genus. On our small hills, *Cheilanthes Cooperæ* hides itself from the sun at the bottom of deep fissures in the rocks. It is a delicate fern, seldom six inches high, and the fronds have on both sides a light coat of fine long hairs. Still rarer, perhaps the rarest of all North American ferns, is *Cheilanthes viscida*. It grows, but not at all abundantly, in a few rocky ravines near the mouth of the Arroyo Blanco, a little stream that loses itself in the desert. It clings to seams in the rocks, in positions entirely shielded from the sunshine. Its fronds are almost as finely divided as those of the Lace Fern, but are narrowly lanceolate in outline, and about six by one and a half inches. They are covered with a viscid secretion, so abundant as to cause them to strongly adhere to the paper when drying them.

On all the mountain slopes of this desert re-

gion, there is an abundant growth of the pretty little *Notholaena candida*. Its elegant triangular frond is subdivided into numerous, closely set pinnules, and the white powder that is lightly dusted over the frond is more abundant around the edges of them, so that they are set off with a faint silvery border; on the reverse, this powder is very plentiful, and in the successive phases of growth, changes from white to yellow, and then brown, and is finally hidden by the rich chocolate of the spore cases. When seen in the summer time closely rolled up, and projected in serried lines from the narrow cracks in which they are rooted, they look like rows of little white and brown fists thrust out in the face of the sun; for they choose a place exposed to the fullest rigor of his glare, and flourish on bare rocks that become uncomfortably warm to the hand. Yet they are the easiest to cultivate of all the genus, and if kept moist will remain expanded all the year. In the same neighborhood there is a plentiful supply of *Notholaena Parryi*, a curious little fern, clothed above and beneath with a close felt of fine, long hairs, white in the young growth, and light brown in age. Its favorite place is the shady side of a large, firmly-bedded boulder, but it sometimes grows on the shady side of a rocky bluff. The closely related Cottony Fern (*N. Newberryi*), has the same preferences, but finds them in a different region; the dry hills south of the Santa Ana river. It bears a general resemblance to Parry's Fern, but is a little larger (six by one and a half inches), and the tomentum, which exhibits nearly the same range of color, is of a different nature, having in the former a kind of wood-like appearance, while that of the present one resembles cotton. It is especially pleasing in early spring, when the milk-white young fronds curl about the bases of the rough stones in a charmingly graceful manner.

Besides the ferns already mentioned, *Cryptogramme achrostichoides* has been found in this region, and last year added *Woodsia Oregana*; but as the writer has not yet had the good fortune to see them growing, he can only add their names to complete the list.

The drought-resisting ferns, such as *Gymnogramme triangularis* and the various species of *Notholaena*, *Cheilanthes* and *Pellaea* would probably be well suited to home cultivation. They are at home in a dry atmosphere, so that the air of stove or furnace heated rooms would not be apt to be as injurious to them as it is to many

kinds of ferns. If not wanted in the summer, they could be set away in some dry place until autumn. Most of them are easily cultivated, and their novel and curious variety would make them objects of great interest.

ON THE FERTILIZATION OF YUCCA.

Read before the American Association for the Advancement of Science, at the meeting at Saratoga, by THOMAS MEEHAN, Fellow of the Association.

In the transactions of the Academy of Science of St. Louis of April 15, 1873, our distinguished associate Dr. George Englemann has some "Notes on the genus Yucca," in which occurs the following passage: "The conspicuously papillose termination of the pistil had always been considered the stigma, but closer examination showed its papillæ to be epidermal appendages, corresponding to similar ones on the filaments, and entirely destitute of stigmatic function; never did they contribute to the development of a pollen grain occasionally adhering to them. Dr. Mellichamp's notice of a drop of glutinous liquid in the tube formed by the coalescence of the so-called stigmas led me to further experiments. That tube proved to be the real stigma, exuding stigmatic liquor, and insects must be the agents which introduced the pollen into the tube." Subsequent investigations by our esteemed associate Professor Riley led to the discovery of a new genus of Lepidoptera—*Pronuba yuccasella*—and which has proved to be the insect agent which fertilizes the flower. In the same number of the Proceedings, Professor Riley describes this insect and says, "with her maxillary tentacle, so wonderfully modified for the purpose, she collects the pollen in large pellets, and holds it under the neck and against the front trochanters. In this manner she sometimes carries a mass twice the size of her head. Thus laden she clings to the top of the pistil, bends her head, thrusts her tongue into the stigmatic nectary and brings the pollen masses right over its mouth. In this position she works with a vigor that would indicate combined pleasure and purpose—moving her head and body from side to side, and apparently making every effort to force the pollen into the tube. Such is the method by which our yuccas are fertilized."

It may be remembered that at our meeting at Buffalo I produced three capsules that had not been produced by this elaborate process, but simply by mere touching of the papillose apex

with one of the flower's own polleniferous anthers. Professor Riley was so sure that the seed-vessels could not have been produced in that way; that there must have been some insect agency unknown to me in addition to my work, that at the conclusion of my paper he asked permission to cut open the capsules, sure of being able to show the larvæ in the fruit; but he found them not. I recall these matters to show that I have not misapprehended the position our friends take on this question.

I now again exhibit numerous seed vessels from this plant of *Yucca angustifolia* in which no trace of larvæ can be found; and seed vessels of *Yucca filamentosa* growing but a few yards from the other, which are infested by the *Pronuba yuccasella*, as this species always is when it seeds at all.

The history of the fruiting of the *Yucca angustifolia* is as follows: It flowered in 1875, but produced no fruit.* In 1876 the early flowers proving infertile, I applied the flower's own pollen to the apex of the pistil of the four last flowers that opened; these produced the four capsules examined by Professor Riley as already noticed. In 1877, noticing that the *Pronuba* abounded in the flowers, no hand application was made, and there was no fruit. In 1878 the flowers were again left to the insects with no fruitful results. The past season pollenization by hand was resorted to, and the numerous seed vessels I exhibit followed. As the pollen was merely applied to the papillose apex it shows that in this species the elaborate and wonderful ingenuity of the insect in applying pollen as described by our friend is wholly unnecessary.

We now come to some extremely interesting considerations, growing out of these facts.

Pronuba yuccasella, the yucca moth, has for years abounded on my flowers of the *Yucca filamentosa*. It has not been known to visit any other plant than yucca. *Yucca angustifolia* begins to flower from two to three weeks, and its blossoming is all over before *Yucca filamentosa*

* At the conclusion of this address, delivered at the Saratoga meeting of the American Association, Prof. C. V. Riley made some remarks which unfortunately I did not hear. The newspaper reports make him say that I was mistaken in the insect I found in *Yucca angustifolia*, that it was not *Pronuba yuccasella*. I have called Prof. Riley's attention to this, and have asked for a correct note of what he did say, but have only the reply that he is "not answerable to a newspaper report." It remains then only for me to say in reply to the "newspaper report" that at the outset of my observations on *Yucca angustifolia*, I sent one of the insects caught to Professor Riley asking: "Is this certainly *Pronuba yuccasella*?" and he replied that it was

begins to open. The facts now adduced show that the moths exist weeks before the flowers bloom with which they have been so intimately connected, feeding of course on other flowers, and would perhaps make use of other fruits as depositaries for their eggs if yucca should not exist. At any rate, the facts weaken any belief we may have that the yucca and all yucca moth through the long ages have become mutually adapted to each other through a fancied mutual benefit.

But the fact remains that the yucca is so arranged that it must have external aid before it can use pollen; and it is believed that this arrangement is for the express purpose of facilitating the introduction of strange pollen; and further that this arrangement must be useful, or it would not exist. And then it is assumed that this useful purpose can only be understood by believing that cross-fertilized seed is of the most benefit to the race. Let us examine this reasoning in the light of facts:—

In 1871, I found *Yucca angustifolia* seeding abundantly in Colorado; but when the interesting matters in its history were brought out by Professor Riley I could not remember whether the seed vessels were infested by the larvæ of the yucca moth, and was glad to revisit Colorado in '73 to examine the plants, but I did not find one seed vessel in several weeks' search for them. I have since engaged friends to get me some, but none have found them. In order to test the matter thoroughly I engaged with a professional seed collector in Southern Utah to buy of him a pound of seed of each of the several species, and recently I have heard from him—the third successive year—that no plant within his observation has produced a single seed. How can we believe that this elaborate arrangement for producing seeds by cross-fertilization through insect agency is for the purpose of producing a better class of seeds, when we see in many cases plants utterly fail, even for successive years, to seed at all?

We know that it is not to the interest of the individual to produce any seeds. Seed is a provision of nature looking to the good of the future, and to which the present good of the individual is often sacrificed. The mignonette, the petunia, the gaillardia, and many other plants under garden culture live for years when prevented from perfecting seeds. We may fairly believe that a plant which acquires the power of easy individual increase and persistence would show less disposition to sacrifice itself on seed;

and thus we do find in nature that it is among that class which has the most of this individual persistence that the indifference to self-fertilized seeds, popularly known as "arrangements for cross-fertilization," is found, and moreover that the most difficulty in germinating is met with even when the seed is freely formed.

The yucca, by its large fleshy root stocks and ability to withstand extremes of drought and heat and cold, is able to maintain an existence indefinitely without producing any seed. For the sake of inducing variation, which is best accomplished through seeds, it may be compelled by inexorable law once in a while to produce them; but a law which is to result in the evolution of new forms will hardly be adduced in favor of any theory which has for its foundation the idea of benefit to an existing race.

[It was our intention to give this to our readers earlier, so as to lead them to observe yuccas this season; but have given place to the favors of correspondents.—Ed. G. M.]

NOTES FROM SOUTH CAROLINA.

BY A LADY CORRESPONDENT.

I should like to call the attention of your readers to a valuable plant growing profusely in these regions, known in the botanical parlance as *Liatris odoratissima*, but to us at the South as Vanilla Grass. The young leaves are delightfully fragrant. The flower is a single stem, bearing many double daisy-like flowers of a deep lilac or purple.

Two years ago I was told that the leaves strewn among woolen goods would effectually preserve them from moths and other noxious insects. In the past two springs I have packed away blankets and carpets, etc., with the leaves (and nothing else) with such perfect success that I cannot but feel that the discovery should not be confined to our Southern land, for nothing would be more easy than the collecting of great quantities of the leaves and sending them to the carpet warehouses and furriers of the Northern States.

In the beautiful Azalea gardens—now become so famous—on the Ashley River, South Carolina, belonging to our esteemed and good friend, the Rev. Mr. Drayton, there grow on the edge by a little lake, some Magnolia trees, the habit of which resembles the common Weeping Willow. Long pendant branches droop gracefully downwards, the lowest almost sweeping the water.

The trees are, I suppose, about sixty feet in height, and they appear to be in full vigor, their long shining leaves being particularly beautiful, though without the red brown velvety back which the leaves of our Magnolia forest trees have. It would, I think, be properly called a swamp laurel, of which there are so many lovely varieties in our State.

EDITORIAL NOTES.

DIRECTIONS OF NUTRITION.—Prof. Karl Koch, in one of his lectures, says: "The view held by pomologists and fruit gardeners, that the nutritive substances move only in a downward direction, is refuted by their own practices.

"I would direct particular attention to the fact that all new growths and lengthening of the various axes of fruit trees (branches and twigs) takes place at the tips, and therefore it is at these points that the greatest quantity of nutritive substance is required, and consequently the greatest flow is not downwards but upwards. Moreover, when the cultivator wishes to cause a latent bud to push forth, which in its action is a consumer of food, he should, acting under the same view, make his incision below the bud in order to divert the greatest quantity of nutritive substances to the new growth; but he does not make it below the bud, he makes it above. As a matter of fact the nourishment which should go to the upper part of the axis is impeded in its upward course by the incision, and actually serves to develop the dormant bud. Again, why does the gardener pinch back the tips of shoots in spring? It is either to strengthen a fruit-bud below, or indeed to bring it to development. The nourishment that would have been used in the elongation of the shoot now remains to benefit the fruit-buds below."

We do not think intelligent pomologists in this country believe that nutritive substances do not flow upwards. After all, it is a question what the Professor meant by "flow of nutritive substance." New growth is formed by the continuous germination of cells. In the primal cell of the season nutrition is stored from the accumulations of last year, and the successive new growths are formed from these stores for some time after the growing season opens. To this extent nutrition may be said to have an upward flow. But that there is also a downward flow, every gardener knows who has had any experience in layering. A stool plant may in time be utterly destroyed

by persistent layering of all its branches; the "downward" flow of nutrition reaching only to the roots of the layered branch, and literally starving the old plant though with numerous roots of its own—and it is from the knowledge of this fact that layered plants of grapes are not valued, because a stool kept for layering comes in time to have a low vital power, laying the progeny open as an easy prey to diseases.

THUJA STANDISHII.—It has been generally supposed that this Japan introduction was synonymous with the *Thuja gigantea* of the Pacific coast, but Dr. Masters, in a recent *Gardener's Chronicle*, decides that it is a distinct species.

FUNGUS SPORES.—A species of *Phallus*, a fungus which appears regularly in the same spot in successive years, producing an immense number of spores—millions on millions, probably—and which, from their dust-like nature, can be borne by the wind many miles; and yet it is believed the species is rarely found, for the oddity of its form, did it exist, would attract the attention of the most stolid observer to say nothing of the impression it would make on those matter-of-fact individuals who are accustomed to "follow their nose" in travelling through the world. This fact has been noticed by observers in connection with other fungoid plants. It seems to point to the generalization that it requires a very nice combination of circumstances for the spore of a fungus to be safe in germinating; and, hence, nature prepares an abundance of material, in a sort of ratio to the risk.—*Independent*.

DESTRUCTION OF PLANTS IN WINTER.—It has been often recorded in our magazine that it is the hygrometrical condition, conjointly with the thermometrical, that decides the hardiness of plants in most cases where the tissues do not burst by the freezing of their liquids, for in many cases vegetable tissue contracts instead of expands under the action of frost. The *Gardener's Record*, of Dublin, furnishes the following instance: "At Ballygiblin, near Mallow, the seat of Sir Henry Becher, Bart., there is a plant of *Pimelea decussata* growing in the open air. It has stood in the same situation for the past four years, and has never received the slightest protection during winter. It is in perfect health, and produces its flowers freely in the month of June each year. It is in a very sheltered position, but, nevertheless, it has withstood some 14 deg. of frost." In our dry atmosphere the plant would be destroyed by the first light frost.

FORESTS AND THE ATMOSPHERE.—The *Gardener's Chronicle* says: "From concurrent thermometric observations made in forests and away from them, at 1.40 and at 14 meters above the ground level, M. Fautrat arrives at the following conclusions. In consequence of the differences of temperature which are observed underneath the foliage and above the summits of trees, a current of air from below upwards is established in forests, and also lateral currents around woods from the foliage towards the open space beyond. These currents cause a healthy breeze in hot weather. The ascending current carries off above the forests the vapors from the soil, puts this latter in communication with the clouds, and fills the office of a lightning conductor; and it is to this, no doubt, that forests owe their remarkable property of keeping hailstorms at a distance."

THE GOLDEN CUP OAK.—The golden cup oak (*Q. chrysoleps*) is a puzzle to botanists; and well it may be, since it occurs as a lofty forest tree and also as a tiny bush. Dr. Kellogg, of San Francisco, pronounces the dwarf form a distinct species; but Dr. Englemann, of St. Louis, though the difference in size is so great, believes that one species includes both extreme forms. A California botanist, Mr. J. G. Lemmon, who has lately made an extended exploration of the High Sierra back of Yosemite, sides with Dr. Englemann, and says that on the various slopes about Yosemite and elsewhere in the Sierra, he has found specimens grading all the way from a tiny prostrate bush, loaded with small, smooth cupped acorns to the tall, majestic tree, bearing yellow golden dust-covered acorn cups two inches across.—*Scientific American*.

RELATIVE INFLUENCE OF SEX IN FERTILIZATION.—It has been stated that, in order to obtain double flowers, it is advisable to make use of the pollen from double flowers, where it is possible to obtain it, and to apply it to the stigma of simple flowers from which it is desired to procure double-flowered seedlings. M. Lemoine, of Nancy, it appears from the *Revue Horticole*, has tried this plan with success, and was desirous of experimenting in this manner with Lilacs, but the only double-flowered lilac then known had no stamens, and consequently no pollen. M. Lemoine then decided to reverse the process, and to fertilize the stigmas of certain double-flowered lilacs with the pollen from some of the best single varieties. The experiment was so far

a success, that out of forty seedlings, thirty at least yielded semi-double or double flowers, one of them being very remarkable for its beauty.—*Gardener's Chronicle*.

QUERIES.

VARIETIES OF PITCHER PLANTS.—Mrs. C. writes. "I would like to ask you about some *Sarracenia*s which we found during our southern trip. Two varieties we have not found described—one with a bright yellow flower, about the color of common prickly pear, grew very abundantly in Florida; the other a green flower, exactly the color of the leaf, in Virginia. My theory is, that the green one would change color on exposure to air and sun, as the *Cobæa*. We looked for them in the Smithsonian Herbarium, and the gentleman who has it in charge could give us no information, either from his own knowledge or his reference library. That suggests another question; which do you consider the best dictionary of botany, Johnson's, or Lindley & Moore's? I have been trying to get Chapman's Southern Flora, but fear it is out of print.

[These may have been forms of *Sarracenia flava*, which is a very variable species. Chapman's work went through two editions, and we are sure there would be a good demand for a third if Dr. Chapman could be induced to prepare it. Wood's Class Book of Botany describes southern as well as northern plants. As a mere dictionary, Johnson's is the best; but those who could afford it should have the "Treasury of Botany" also. It tells of so much more than the mere dictionary does.—Ed. G. M.]

INDIGENOUS AND EXOTIC.—F. R., St. Louis, Mo., writes: "We have here an abundance of a white flowered weed which is one of the worst of our wild things. But when talking with a friend recently about it, I was corrected. He said it was not a wild flower, but an exotic. I am sure it is native to these parts, for I have known it long years ago. What is the true meaning of exotic as applied to a common weed?"

[Usually, gardeners confine the term exotic to plants requiring more than usual garden care brought from other countries; they would scarcely call a weed which came to this country without his direct aid an exotic. Still, critically, one might call an introduced weed an exotic. Usually foreign weeds would be called introduced,

and only those that have been here before the white man came would be called indigenous or native. As a matter of fact there is nothing to show that any plant is "native," in the sense that it is now in the locality where it was first created. Plants are great wanderers. They are ever on the move. We call plants native just as

we call Indians natives, simply because they were here when our history began. A foreign or introduced flower, would be one that has been known to come here since our time. It is scarcely worth arguing whether a plant is indigenous or exotic. When it once makes a home here, it should be regarded as a native.—ED.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

NOTES AND QUERIES—No. 14.

BY JACQUES.

The Black Oat, *Avena sativa*, has become a terrible weed in South Australia, which is singular, as the variety, the sterilis, its near relative, is a great blessing to California, over which it has been widely diffused. Schomburgk says, "The Black Oat has the most notorious pre-eminence of all the introduced weeds, and the effects of this intruder are the most ruinous to the farming community. Thousands of acres of arable land are totally ruined for the purposes of wheat growing by the Black Oat."

The United States Consul at Florence, Italy, gives, in a report to the State Department, an account of the flour made from chestnuts and used in many parts of Southern Europe. The writer says:

The number of trees in Tuscany and Lucca is estimated at several millions, and the nut and wood have done more to maintain the population of some of these districts than any other production. In some places wheat flour and corn meal are entirely superseded by the chestnut flour, which is very nourishing and much cheaper as an article of food.

Mr. Crosby is of opinion, after a careful study of the subject, that this variety of chestnut can be grafted on the native American species, and thus be made a source of wealth and profit in this country, especially in certain mountainous districts, where it is almost impossible to raise cereals, owing to the nature of the soil and the steepness of the mountain sides, and where transportation is so difficult and labor so high and scarce. Outside of this question of using the chestnut for food in the districts where it

could be cultivated and grown to advantage in the United States, the present price of the imported Spanish chestnut, which is used for various purposes throughout our country, would, he claims, amply repay any outlay farmers might have to make in importing scions or shoots of this magnificent variety from Italy, for grafting on our own chestnut trees. * * * *

The flour can be preserved for two years. It is used in the same way as wheat flour, and though less nutritious, is much cheaper; and, at the same time, exceedingly agreeable to the taste. He says that, in those regions where the inhabitants live almost entirely on the chestnut, they are of better appearance and more healthy.

The Garden notices a double fragrant *Wistaria*. Is it known in America?

An ancient *Yew tree* has been removed at Dover, England, which, with the earth to be moved with it, weighed about fifty tons.

Wax being indestructible by the elements, it is suggested that marble and even the Egyptian obelisks be coated with the white material.

The use of diluted yeast as an insect killer is again recommended.

The Tree Box is the evergreen for cities.

Fairmount Park this year exhibits an emphatic progress and improvement in the way of planting, under the able auspices of the landscape gardener, Mr. Charles H. Miller. We wish he had more facilities.

Mosquitoes and insects are kept aloof by a solution of *Quassia* made by boiling. Put it on the skin to dry and the result will be as stated.

According to *Prof. Church*, withered leaves of the usual autumnal colors—yellow, red, or brown

—can be rendered green again by steeping in water along with a little zinc powder.

The Chloride of Methyl is now used in extracting the odoriferous principles of plants.

A *lost ring* is making newspaper paragraphs; the favorite story of Sir Walter Scott was about the same topic: A serving man was sent by his employer to a neighboring town to have a diamond ring mended; crossing a brook he dropped it into the stream, ran away to India and returning wealthy after twenty years, went with a friend to make restitution. Coming to the stream, "there" said he, "I lost that terrible ring"; as he spoke he placed his cane in the water, and on withdrawing it, behold the ring was on the ferule at the end of it!

Matilda—Yes, it is one of the curious and new impressions of travel to an American to find large trees growing in European ruins. At the old Schloss at Baden Baden, they are found growing in what must have been the parlors; at Heidleburg the same curious facts strike the traveller in the old castle. Where ladies received the returning warrior knight the walls still stand uninjured; but trees of considerable size grow where the footfalls of ladies and their admirers figured in times not extremely ancient. So at Verona, the Coliseum built of enormous rocks, considerable trees have taken root high up in the walls, and wave their branches in every wind. So the American finds constant surprises at things he never saw at home.

More Wax.—The white Chinese wax has a curious history. It is the result of an unhealthy condition aggravated by an uncongenial climate. In the province of Keen Chang there grows an abundance of the *Ligustrum lucidum*, an evergreen tree with pointed ovate leaves, on the twigs of which myriads of insects spread themselves like a brownish film every spring. Presently the surface of the twigs becomes mounted with a white waxy substance secreted by the insects, increasing in quantity until August, when the twigs are cut off and boiled in water; the wax rises to the surface, is melted and cooled in pans. It was discovered that by transporting the insects to a less genial climate, the amount of wax was vastly increased by preventing their breeding. You meet hundreds of wax merchants, each carrying his load of female insects to the wax farms, over a journey rough and long, and a fortnight's sun would precipitate the hatching,

which should take place after the females have been attached to the trees. The birth of the young is the signal for the death of the parent; six or seven of their prolific mothers are wrapped in a palm leaf and tied to a branch of the *Ligustrum*, when soon swarms of infinitesimal insects creep forth and cluster on the twigs, where they fulfil their mission. Baron Richthoven considers the value of the annual crop to be on an average upwards of thirty-two millions of dollars, and during 1878 there was exported from one port upwards of forty-one thousand dollars worth of it. Pretty well for an insect.

The Cawthorp Oak in England continues to attract admiration as their largest tree. The size of the roomy hollow of its stem may be estimated when it is stated that seventy children were packed in it at one time. It is but a cripple.

EDITORIAL NOTES.

EDITORS AND CORRESPONDENTS.—*The Garden* says: "Our friend Meehan is enlightening us as to our decadence, in his GARDENER'S MONTHLY:—

'England may in some senses thank herself for the ruin of her late crops. She has for many years drained her land to such an extent that all the rainfalls flow immediately into drains, not stopping long enough to penetrate the earth. The result is a quick filling of her little rivers and water courses; these overflow their banks immediately; hay is set afloat and ruined; grain is damaged either when cut or in the ground; sheep are drowned, and not unfrequently cattle. Drainage in certain cases is very valuable; but the English in their over-zeal have carried it too far, and are now obliged to ask food of their once despised cousins.'" As a matter of fact the extract is from a correspondent's letter, and not from the editor's pen. Many papers have a standing notice that the "editor is not responsible for the opinions of correspondents." We have never thought it necessary to make such a public disclaimer. We doubt even whether the *Garden* adopts the views of its correspondents as its own.

CHARLES C. FROST.—Lord Byron somewhere tells us that it is one of the easiest things in the world to be a self-sacrificing philosopher when all the world is looking on and applauding the good deeds. Generally, the devotee of science is as indifferent to personal glory as any class of his fellow mortals; but he relishes praise for all.

In these days the labors of few men meet with so much public recognition, as the labors of the man of science, and it would be scarcely doing justice to human nature if it were not admitted that in most cases the good word from his fellows is a great encouragement to him to persevere in his labors.

But there are men like Burk and Parker in Philadelphia, Strecker in Reading, Davenport in Boston, and numerous others in the United States, who, without any early advantages, without any thought of ever being famous, giving their first duty to their families fully in daily toil, yet employing their leisure in so improving themselves, and devoting their improvement to the study of nature, keep on throughout their lives in their humble, quiet way, amassing facts, and finally becoming so useful that even the march of high science has to stop a few moments to pay them respect. Sometimes this recognition comes before they die; but generally the world does not know how much it has lost till the good man is gone away. Of this last is Charles C. Frost, who died at Brattleboro, on the 16th of March, in his 75th year, having all his life remained in the town wherein he was born. He was apprenticed to a shoemaker in his early teens, and continued on with that business till his death, as his father had done before him. The story of how he became a botanist is a very interesting one. When he was fifteen years of age, his father became possessor of "Hutton's Mathematics," which he had taken for debt from some West Point student. Young Frost looked at it with evident delight, and his father told him that it should be his property if he could read it at twenty-one. At nineteen he had mastered the whole course. He went into astronomical mathematics, took up chemistry, learned very much of natural sciences in every department, and all the while attended to his business as a shoemaker. From some neglect of his physical habits, he superinduced mucous dyspepsia. No medical skill in his neighborhood seemed able to relieve him. He went to New York to consult Dr. Willard Parker. While waiting in the ante-room, he admired intently a very handsome bouquet of flowers on the mantel, and was examining them when the doctor called him in. Dr. Parker candidly told him he could do nothing for him: "But," said the skillful and honest physician, "you can do very much for yourself. Are you fond of flowers?" "Very much so, indeed," said Mr. Frost. "Then make it a point

to walk one hour in the morning, and one in the evening, looking for flowers."

Anxious once to know more about some ferns than he thought he could find in American works, he sent \$12 to London for a work by the celebrated Fries, and was somewhat put out when it came and he found it was in Latin. But he at once procured a Latin grammar and dictionary, and before the year was over he knew all that Fries could tell. Finding by this experiment in languages that fortune favors the brave, he took up at once French and German, and soon learned to read and write them correctly. A botanist who went to see him once found him in his little shoe-shop; but no matter how interesting the botanical conversation, he would break off instantly, and without the slightest "excuse me," to attend to his customers. That was his business, and he owed his first duty to that without the sham formality of apologizing for doing his duty. As he returned once after taking out some pegs from the shoe of a factory girl, the visitor asked him how he could be content to spend his days in that little shoe-shop, with these capabilities and acquirements? "Why," said he, "it is the business of my life. Whatever I have acquired of science came in the search of health and mental entertainment. Science is not my profession—shoe-making is."

In this mental entertainment he had accumulated about one thousand volumes, and yet at no more cost in his life than other people spent in cigars. As in his business so in whatever he thought to be his duty, he would not let his scientific entertainments run away with him. He had been for many years a member of the Centre Congregational church, and up to the time of the beginning of his final illness, three weeks ago, had not failed of an attendance at church on Sunday for thirty-five years. His leading scientific specialty was as a botanist, and no man in the country was a better authority on the ferns, lichens and mosses of this region. In entomology he was an authority, and both as a botanist and entomologist he was quoted by the scientists both of this country and Europe.

As a general rule a prophet is not honored in his own country, especially a prophet who makes no special effort to make his voice heard; but it is a pleasure to note in this case that while the honor due to a prophet came in the shape of close correspondence with many of the great men of the old world, he was not wholly

neglected at home. The degree of A. M. was conferred upon him by both Dartmouth and Middlebury Colleges.

THE ALMOND.—The Almond, like the Pomegranate, is one of the very earliest trees mentioned in ancient literature. The history of the tree is bound up with that of the original annals of mankind; we have a reference to the produce in the beautiful old narrative in Genesis xliii. 11, the events related in which took place considerably over 3000 years ago. The native country of this charming tree, though the region has been pretty well ascertained, cannot be pointed out quite as precisely as one would wish. De Candolle thinks that the area may have extended from Persia westward to Asia Minor and Syria. Like many other trees of South-Western Asia, it certainly became diffused along the shores of the Mediterranean at a very early period. It was well known in Greece in the time of Theophrastus, B. C. 350, this author making copious mention of it, and thence probably it would be that the tree was conveyed to Italy. M. Porcius Cato, 150 B. C., and Columella, in the reign of Claudius, refer to the nuts under the names of *Avellana græca* and *Nux græca*, Cato remarking that the taste is acrid, which would seem to imply that the variety he was alone acquainted with was the bitter one. At the present day the Almond occurs in hedges everywhere in Greece, Anatolia, Barbary, &c., not to mention Palestine, Turkestan, Mesopotamia, Kurdistan, and other localities probably *primæval*. In Egypt it did not grow in the very olden times, or at all events, it was rare, as indicated by Jacob sending Almonds as part of his present to Pharaoh's Prime Minister—a proceeding which seems to indicate, collaterally, that it was a tree which in Canaan was always prosperous, flourishing and bearing fruit even in seasons when the cereals failed. In England the Almond is believed to have been cultivated since the days of the later Plantagenets, the original plants coming from Barbary, but nothing can be stated positively. Our climate is ill-adapted to its success as an orchard tree. Hence, although encouraged everywhere for the sake of its lovely vernal bloom, our market supply of the produce is derived from warmer latitudes. The so-called Jordan Almonds come, not as the name would seem to indicate, from Palestine, but from Malaga.—*Gardener's Chronicle*.

ROSEWOOD.—One of the American journals says that "it has puzzled many people to decide

why the dark wood so highly valued for furniture should be called rosewood. Its color certainly does not look much like a rose, so we must look for some other reason. Upon asking, we learn that when the tree is first cut the fresh wood possesses a very strong rose-like fragrance, hence the name. There are half a dozen or more kinds of rosewood trees. The varieties are found in South America and in the East Indies and neighboring islands. Sometimes the trees grow so large that planks 4 feet broad and 10 feet in length can be cut from them. These broad planks are principally used to make the tops to piano-fortes. When growing in the forest the rosewood tree is remarkable for its beauty; but such is its value in manufactures as an ornamental wood, that some of the forests where it once grew abundantly now have scarcely a single specimen. In Madras, the government has prudently had great plantations of this tree set out in order to keep up the supply." The rosewood is *Physocalymna floribunda*, and it is entitled to the specific name from the excessive number of its red flowers, which, when fully expanded, render it a splendid object.—*Journal of Horticulture*.

AN ANCIENT SEED SHOP.—The *Standard* of Sept. 27, in its report of the recent excavations at Pompeii thus speaks of the discoveries that were made: "As it was impossible to be at all the points of interest, ten new excavations being carried on simultaneously, I went, being advised by those most competent to judge, to section No. 9, and there, in a small division parallel to that already numbered five, the curiosity of the spectators was soon richly rewarded. Almost with the first strokes of pick and spade, used, by the way, as only Pompeian diggers know how, there came to light a quantity of household objects, chiefly of those light and beautiful forms and delicate workmanship to be found in even the humble Pompeian dwellings. A detailed list of the various articles in the order in which they were found fills six closely-written pages in my note-book. They were bronze amphora lamps, brooches, bracelets, delicate vases, and one very large and elegant bronze candlestick, earthen vessels of various forms, fragments of glass, amongst which were the pieces of a lovely little glass vase of the most brilliant blue color. The belongings of the upper and under stories of this little house were curiously mingled together, objects of mere ornament being mixed up with kitchen utensils. Then came some large

tiles and fragments of a large beam of wood, showing that the roof had been crushed in on the lower stories. It is judged to have been the shop of a seedsman, for besides some bronze scales and weights, several large heaps of small beans, grain and hemp seed came to light, with portions of wooden casks and canvas sacks in which they had been kept. One piece of sacking which I had in my hand, still tied with a bit of string, was wonderfully perfect, although quite black."

JOHN W. HARDEN.—We learn by an obituary notice in the Proceedings of the American Philosophical Society, that this well known mining engineer was born at Leicester in England, and died in Philadelphia Nov. 8th, 1879. He was educated as a gardener, and the laying out of the gardens of Captain Cust at Wormleybury, and of Sir Ralph Howard, both near London, was the work of his hands. He settled in America in 1865, taking charge of the Plymouth Coal Company's works in Luzerne County.

FLOWERS AND FERNS OF THE UNITED STATES.—Charles Robson & Co., Philadelphia, Penna. The second series of this work is now complete, and the bound volumes ready for issue. This makes now 192 of the handsome wild flowers of our country that have been figured and described. A third series is now being prepared, which will be ready for the press next spring. In the past it was not thought financially wise to get ready for a new series until it was found whether the work would be permanently supported by the public. This has necessitated a short interval between the appearance of the first and the second, and the second and the third. Now that it is evident the work will be permanently popular, it is probable future series will follow each other without any interval, as long as the editor may have health or strength to continue them.

BEET SUGAR CULTURE.—By E. B. Grant, Philadelphia. Claxton, Remsen & Haffelfinger. "The object of this book," says its author, "is to call attention to the importance of beet sugar production in the old world, and to demonstrate the advantages and feasibility of establishing it in the United States." As more than usual interest has been taken in this subject of late, the work is a very timely one.

SUCCESS WITH SMALL FRUITS.—By E. P. Roe. Dodd, Mead & Co., New York. "Have you seen Roe's 'Success with Small Fruits?'" said the good Col. Wilder, as the writer of this took his arm to

walk into the old South Church. The reply was that it had not been seen. "Then," said the enthusiastic pomologist, "don't fail to do so when you return. It is a contribution to American pomology we may all be proud of." On the return home it was on our table, and we can well understand Col. Wilder's pleasure on its appearance on his. It has done for pomology what the works of Downing, F. J. Scott and others have done for other branches of gardening. It has placed it among the fine arts. While all previous works on fruit culture have treated the subject rather as one ministering to a material want, instructing us how to get the greatest weight of fruit per acre, or so many cents per pound, this does not rest there; but while paying full respect to the dollar and cent aspect of small fruit culture gives us an intellectual treat, rich and rare, which any one might enjoy though he never set out a strawberry plant, or ate a berry in his life. It has been among the weaknesses of horticulture in our country, that too many of those who are popularly esteemed horticulturists, and are looked upon as leaders and shining lights in "horticulture" are mere grovelers, and too nearly akin to that ancient creature which was doomed to go through the world henceforth eating dirt all the days of his life. Every effort to elevate our beautiful art must be welcome to its best friends; and welcome, very welcome will be this beautiful work of Mr. Roe's. The genuine lover of gardening will extend thanks to author and publisher alike.

DAIRY FARMING.—Part 11, from Cassell, Petter & Galpin, New York, of this beautiful work is devoted mainly to dairying; and those who have been swearing by "Short Horns" may see how they would look with "Long Horns" for their idols. The chromo represents a fine group of this breed.

ANNUAL REPORT OF NORTH CAROLINA EXPERIMENTAL STATION FOR 1879. From Dr. Ledoux, Chemist.

FIRST BIENNIAL REPORT OF THE STATE BOARD OF AGRICULTURE OF KANSAS.—From J. K. Hudson, Topeka, Secretary. Applicants for these should send 20 cents postage to the Secretary.

CEMETERY GARDENING.—Mr. Robinson, the well known editor of the *Garden*, and author of the beautiful "Parks and Gardens of Paris," will soon issue a work especially on cemetery gardening.

GARDENING.—Mr. Robinson's "penny" venture under the above title has been a remarkable success. It has reached a circulation of 50,000. We are glad of it. The one who strives to add to the knowledge of those already intelligent,

serves usefully in society; but he who takes knowledge down to the comprehension and within the means of the multitude, seldom acquires the fame the other does, yet is for all among the blessed in the usefulness of his labors.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

MISSISSIPPI VALLEY HORTICULTURAL SOCIETY.—Arrangements have been made on a scale that must ensure success, by which a Mississippi Horticultural Society is to be established. An exhibition on a first-class scale is to be held September 7th, 8th and 9th, at St. Louis. Some remarkably liberal premiums are offered. For instance, the best collection of stove or greenhouse plants, \$100; second best, \$75; third best, \$50; fourth best, \$25; and the offers for fruits are equally liberal. S. M. Tracy, 600 Olive Street, St. Louis, is Secretary, who will send schedules or other information.

NURSERYMEN'S MEETING AT CHICAGO.—By the time this appears in print the annual meeting of the American Association will have been held at Chicago, and it is to be hoped with a success it deserves. It is composed of the best men in the trade, who are anxious to elevate their business to the social rank it deserves. The writer of this was expected, and hoped to be present, as it is well known the Association has his best wishes; but as he was expected as Botanist to the State Board of Agriculture, to address that body about the same time at Gettysburg, and soon after would have to leave with a party on a botanical, horticultural and agricultural exploration through East and West Virginia, Tennessee and North Carolina, it was not possible to be present. At the meeting at Cleveland last year, the remarks of Mr. Henderson on firming the soil, attracted a great deal of attention.

We have desired to give it in full, as it well deserved, but only now have the opportunity of doing so. He said: "It may be useless to throw

out any suggestions relative to horticultural operations to such a body of practical men as is now before me. Yet I candidly admit that although I have been extensively engaged in gardening operations for over a quarter of a century, I did not fully realize until a few years ago, the full importance of how indispensable it was to use the feet in the operations of sowing and planting. Particularly in the sowing of seeds, I consider the matter of such vast importance that it cannot be too often or too strongly told, for the loss to the agricultural and horticultural community by the neglect of the simple operation of firming the soil around seed must amount to many millions annually. From the middle of April to nearly the end of May of this year, in many sections of the country there was little or no rain. Such was particularly the case in the vicinity of New York, where we have hundreds of market gardeners who cultivate thousands of acres of cabbage, cauliflower, and celery, but the 'dry spring' has played sad havoc with their seed beds. Celery is not one-fourth a crop, and cabbage and cauliflower hardly half, and this failure is due to no other cause than that they persist in sowing their seeds without taking the precaution to firm the soil by rolling.

"We sow annually about four acres of celery, cabbage and cauliflower plants, which produce probably 5,000,000 in number, and which we never fail to sell mostly in our immediate neighborhood, to the market gardeners, who have many of them even better facilities than we have for raising these plants, if they would only do as we do, firm the seed after sowing, which is done thus: After plowing, harrowing and leveling the land smoothly, lines are drawn by the 'marker,' which makes a furrow about two inches deep and a foot apart; after the man who sows the seed

follows another, who with the ball of the right foot presses down his full weight on every inch of soil in the drill where the seed has been sown. The rows are then lightly leveled longitudinally with the rake, a light roller is then passed over it and the operation is done. By this method our crop has never once failed, and what is true of celery and cabbage seed is nearly true of all seeds requiring to be sown during the late spring or summer months.

"On July 2d, 1874, as an experiment, I sowed twelve rows of sweet corn and twelve rows of beets, treading in after sowing every alternate row of each. In both cases, those trod in came up in four days, while those unfirmed remained twelve days before starting, and would not then have germinated had rain not fallen, for the soil was dry as dust when planted. The result was that the seeds that had been trodden in grew freely from the start, and matured their crops to a marketable condition by fall, while the rows unfirmed did not mature, as they were not only eight days later in germinating, but the plants were also to some extent enfeebled by being partially dried in the loose, dry soil. This experiment was a most useful one, for it proved that a corn crop sown in the vicinity of New York as late as July 2d could be made to produce 'rousing ears' in October, when they never fail to sell freely at high rates, but the crop would not mature unless the seed germinated at once, and which would never be certain at that dry and hot season unless by this method.

"The same season in August I treated seeds of turnips and spinach in the same way. Those trod in germinated at once and made an excellent crop, while those unfirmed germinated feebly and were eventually nearly all burned out by a continuance of dry, hot air penetrating through the loose soil to the tender rootlets. Of course this rule of treading in or firming seeds after sowing must not be blindly followed. Now, if firming the soil around seed to protect it from the influence of a dry and hot atmosphere is a necessity, it is obvious that it is even more so in the case of plants whose rootlets are even more sensitive to such influence than the dormant seed. Experienced professional horticulturists, however, are less likely to neglect this than to neglect in the case of seeds, for the damage from such neglect is easier to be seen and hence better understood by the practical nurseryman; but with the inexperienced amateur the case is different, when he receives his package of trees or

plants from the nurseryman he handles them as if they were glass, every broken twig or root calls forth a complaint, and he proceeds to plant them gingerly, straightening out each root and sifting the soil around them, but he would no more stamp down that soil than he would stamp on the soil of his mother's grave. So the plant in nine cases out of ten is left loose and waggling, the dry air penetrates through the soil to its roots, the winds shake it and it shrivels up and fails to grow; then come the anathemas on the head of the unfortunate nurseryman who is charged with selling him dead trees or plants.

"About a month ago I sent a package of a dozen roses by mail to a lady in Savannah. She wrote me a woeful story last week saying that, though the roses had arrived seemingly all right, they had all died but one, and, what was very singular, she said, the one that lived was the one that Mr. Jones had stepped on, and which she had thought sure was crushed to death, for Mr. Jones weighs 200 pounds. Now, though we do not advise any gentleman of 200 pounds putting his brogan on the top of a tender rose plant as a practice conducive to its health, yet if Mrs. Jones could have allowed her weight to press the soil against the root of each of her dozen roses, I much doubt if she would now have had to mourn their loss. These improvements loom up from various causes, but mainly from suggestions thrown out by our employees in charge of special departments, a system which we do all in our power to encourage. As a proof of the value of such improvements which have led to simplifying our operations, I will state the fact that though my area of greenhouse surface is now more than double that which it was in 1870, and the land used in our florists' business one-third more, yet the number of hands he employed is less now than in 1870, and yet at the same time the quality of our stock is infinitely better now than then. Whether it is the higher price of labor in this country that forces us into labor saving expedients, or the interchange of opinions from the great number of nationalities centering here that gives us broader views of culture, I am not prepared to state, but that America is now selling nearly all the products of the greenhouse, garden, nursery and farm, lower than is done in Europe, admits of no question, and if my homely suggestions in this matter of firming the soil around newly planted seeds or plants will in any degree assist us in still holding to the front I will be gratified."

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Over and over again, as we travel through the country, are we impressed with the fault of over-large places. Many gardens are laid out in the flush of some temporary business success, and they become sources of great annoyance in the great expenses of subsequent maintenance. Even the richest seem to undertake too much. We should lay it down as a rule that in all suggestions for the improvement of grounds, the subsequent cost of keeping in order should be studied well. This is the rock whereon so many strike. Walks and roads are particularly expensive to maintain, and should never be made without there is an evident necessity for them. Shady grass walks, with masses of flowering shrubs on each side, and kept mown a few times a year, are as pleasurable parts of a pleasure ground as can well be provided, yet we very seldom see them employed.

It should not be forgotten that beauty can often be acquired without great cost. By studying the character of a piece of ground, and adding to that which already exists, we can often make a place as attractive as if we attempt wholly to imitate at great cost some pleasant garden scene that exists elsewhere.

In nothing is the adaptation of simple, instead

of expensive means, of adornment better shown than in the employment of weeping trees for shady summer bowers, instead of the hideous lumber-worked buildings so often seen. These are very well in the cooler European climates, but useless in American gardens. They are always hot and unpleasant, but this is not so often the case when a mere bower of living trees is employed to make the necessary shade. The green mass is in keeping with other trees, and the crowding necessary to accomplish the desired shade, can often be turned to the very best account. This is especially the case when weeping trees are employed. The peculiar drooping habit comes into play in numerous ways in the hands of a good landscape gardener. Of the fast growing things of this kind, and where the position is not particularly choice, there are few things more useful than the *Weeping Willow*. For more select places we suppose there is nothing better than the *Weeping Ash*. Indeed, taken all in all, it is one of the best trees of this kind we have. The branches can be trained over wires, and thus we can make the room beneath the trees as extensive as one could wish. For very large spots, a half dozen or so can be used. Set in one circle, and the trees about twenty feet apart. Such an arrangement would make a delightful croquet ground,—or a place

for parties or pic-nics—entirely in the shade, yet with an abundance of room and air all round.

Of good weeping trees adapted to capacious shade, there is now the weeping yellow elm, weeping beech, weeping birch, weeping poplar, as well as the ash and willow already noted.

Many other kinds of weeping trees are rather ornaments than extensive givers of grateful shade. Of vines and such like plants for shady arbors we have already spoken, and, although they necessitate an expense which the mere weeping tree does not entail, they have many amply compensating charms. The early spring fragrance of the Akebia, or later of the various kinds of honeysuckles, is worth all it costs.

It may be well to repeat what we have said in substance before, that the latter end of August is one of the best seasons of the year to transplant evergreens. The young growth of the past season has got pretty well hardened, so as to permit of but very little evaporation,—and the earth being warm, new roots push with great rapidity, and the tree becomes established in the ground before cool autumn winds begin. The chief difficulty is that the soil is usually very dry, which prevents much speed with the operation; and the weather being usually very warm, the trees have to be set again in the ground almost as fast as they are taken up; so that it is not safe to bring them from a distance. It is as well, therefore, to make all ready in anticipation of a rain, when no time may be lost in having the work pushed through. Should a spell of dry weather ensue,—which in September and October is very likely,—one good watering should be given, sufficient to soak well through the soil and well about the roots. A basin should be made to keep the water from running away from the spot, and to assist its soaking in. After being well watered, the loose soil should be drawn in lightly over the watered soil, which will then aid in preventing the water from drying out soon again.

Towards the end of the month, and in September, evergreen hedges should receive their last pruning till the next summer. Last spring, and in the summer, when a strong growth required it, the hedge has been severely pruned towards the apex of the cone-like form in which it has been trained, and the base has been suffered to grow any way it pleases. Now that, in turn, has come under the shears, so far as to get it into regular shape and form. It will not be forgotten that, to be very successful with ever-

green hedges, they ought to have a growth at the base of at least four feet in diameter.

Herbaceous plants often die or become weak after a profuse summer flowering. This is especially the case with choice perennial Larkspurs, Pentstemons, and other things. Seeds of these should always be saved as a precaution against loss. Where plants are able to take care of themselves no seeds will be needed. In that case cut off the flowers as soon as they fade. It helps to strengthen the roots very much. Indeed these which sometimes die, do so chiefly because of having to perfect seed.

EDITORIAL NOTES.

THE PUBLIC SQUARES OF PHILADELPHIA.—We pointed out last year the disgraceful condition of these little gardens in the great city, and the city daily papers have since taken up the subject with a will. But it seems to us there is nothing gained by abuse of the city officials. There is no doubt but more might be done with the money if a better class of men were employed to do the work; but it is clear that under the present system of electing the management of these places, it will be the millennium before we shall get better men. But the naked fact is, that with the meagre appropriations made, the very best men could not keep these public places in a good condition. In the meantime the disgraceful dirtiness of these squares must often make the mayor blush whenever he sees how much better those of other cities are.

ROSES IN EUROPE.—The leading rose growers announce that on account of the awful destructive drought last winter, prices have been advanced.

PRUNING OF OSAGE HEDGES.—Mr. James Hogg says in the *Rural New Yorker*: "The season after they are planted each plant will throw up several shoots; these are to be shortened back the ensuing spring to within six inches of the ground; and then for the ensuing five or six years the growth of each year is to be shortened back to twelve inches, making the hedge five and a half or six and a half feet high at the end of the term." We should be glad to have the experience of our readers as to the best way to treat hedges. The subject is a very important one.

HARDY EVER-BLOOMING ROSES.—We want nothing worse in the gardens of the Northern States. Our improved prairie roses are beautiful while they last, as is the old crimson Boursault, and others; but when we come to ever-bloomers we have to take the strong growing Noisettes, which are more or less injured in severe weather. Of Bourbons we have Gloire de Rosamond tolerably hardy; but after all these are rather fall than ever-bloomers. Among hybrid perpetuals there are some strongish growers, for instance Baron Prevost, which, however, though classed with hybrid perpetuals, seldom bloom in fall. By the following from the *Journal of Horticulture*, we find we may have our wants supplied. It is at least worthy of the attention of American growers: "A visitor to Regent's Park writes as follows concerning Red Rose Dragon exhibited in Messrs. W. Paul & Son's collection there: Of all the handsome varieties which were so well represented, the one that especially attracted my attention was the new climbing hybrid perpetual Red Dragon. This fine variety originated among some seedlings in Messrs. Pauls' nurseries at Waltham Cross in 1875, and was admirably figured in the "Rose Annual" for 1878-79. The flowers are of great substance, cupped, and of an intensely rich crimson color in a young state, becoming tinged with purple as they advance. The plant is extremely vigorous with handsome foliage, and its habit renders it well adapted for training to pillars and similar positions."

IMPROVED HEPATICAS.—This pretty American plant, *Hepatica triloba*, or Silverwort, is very popular in England as an early spring flower. The *Gardener's Record* says: "There is now, says the *Garden*, in great beauty at the Hale Farm Nurseries large quantities of *H. triloba*, the flowers of which exhibit a remarkable diversity in point of color, varying as they do from pure white to the deepest blue, and to the richest crimson. No prettier plants for spring flowering could be chosen than these, as their culture is so easy that they thrive almost anywhere. A bed containing a large number of plants recently imported direct from their native habitat strikingly exemplified the great variation in the tints of the flowers, though they are regarded as not permanent."

THE IRISH YEW.—This seems to be much hardier than the other forms of *Taxus baccata*, and probably from the closeness of its branches.

The one pressing against the other prevents cold winds from whistling through.

HYDRANGEA PANICULATA.—They do not seem to think as much of this in England as we do here. A correspondent of the *Journal of Horticulture*, noting Veitch's nursery, says: "In an adjoining house I saw fine stocks of all the new hydrangeas, especially of Thomas Hogg, rosea alba and stellata. For the purpose of general decoration I am not sure that any of these will supersede the old hortensis, but for pot culture they are all desirable. I have not yet seen Thomas Hogg of any size in the open, but the one known as *Paniculata grandiflora* is a poor washy thing when planted out, but under glass it is much more valuable. In the grounds surrounding the houses there was a fine display of dahlias, phloxes, and other subjects of a like character."

ROADS AND PATHS.—As already noted in the GARDENER'S MONTHLY, it is a matter of surprise to every intelligent foreigner, that with so much in America to praise, our roads and paths should be generally so execrable. He does not know how we love self-government, and hate to have general laws. Every little thing to be done must have almost unanimous consent, or it must remain as it was in the days of Adam. This is wise so far as it goes, for power once transferred is often difficult to be resumed again. But in the matter of roads, no one is oppressed. Every one is benefited by a good road; and we see no reason why the proposition often made in our magazine might not be adopted by every corporation. The proposition is that when a macadamized or similar good road can be made for 5 per cent. of the estimated value of the property along its front, such good road should be duly made according to law, at the expense of such fronting properties.

This matter of good roads is especially for good horticulturists to work out. If horticultural societies would take in hand such matters, and be a power in the community, they would be very much more popular than they are.

Appropriate to these remarks is the following from the *Daily News* of Dennison, Texas: "In Texas, nature has exerted herself to create peculiarly beautiful sites for cities. There is no place on the continent possessing more lovely location than our own State. By rushing rivers, near wondrous springs, in mottes of ancient oaks, on rolling prairies, our cities are built.

Everything within, around, above, is on the grandest scale of nature; yet, how many cities, towns, or villages within the borders of the State look ragged! There is something that jars the harmony of the 'make up'—something loose in the attire. Here, there, and yonder, in every city, we see individual residences, built with taste, and the surroundings in keeping, fences in good repair, sidewalks perfect, shade trees planted. Nine chances out of ten the owner, on a wet day, after leaving his own sidewalk, will have to wade through the mud to get down town. His city has not sufficient backbone to force property owners to build sidewalks."

EUONYMUS RADICANS.—We have called attention to the merits of this very hardy evergreen as a wall or tree creeper. Mr. Shirley Hibberd in the *Gardener's Magazine*, has also a word to say in this connection: "This cheap, fast-growing, bright-looking, and extremely neat euonymus is as well suited for clothing a wall as any evergreen shrub in cultivation. I could tell you of a snug little house in a very snug shaded nook that is clothed with it, and its appearance is surprisingly beautiful. No variegated ivy could equal the glossy, creamy, dappled close leafage of this fast-growing and healthy-looking plant, which, moreover, almost trains itself, though wanting a little help of nails and shreds. It is the equal of the ivy in another respect, for any soil will suit it, so that where the stuff below is not good enough for a wall rose, clematis, or a wistaria, it may be good enough for this euonymus, which also endures shade and town dust as well as any plant in creation."

POPULAR ROSES.—The New York Horticultural Society offers premiums for the following kinds of hybrid perpetual roses. We may therefore regard them as among the most popular kinds in that section: Paul Neron, Baroness Rothschild, John Hopper, Baronne de Maynard, Captain Christy, Madame Lacharme, Paul Ricaut, Jules Margottin, Annie Wood, La France, Madame Victor Verdier.

TREE OR STANDARD WISTARIAS.—The plan of first training a Wistaria up a stake for a couple of years, and then taking away the stake and compelling it to be self-supporting, has been urged at various times during the past twenty years in the *GARDENER'S MONTHLY*, and some of the nurserymen about Philadelphia have acted on the plan, and some of the specimens are now in great beauty about the gardens there. We

see that the idea has travelled to Europe now, and the *Gardener's Chronicle* thus speaks of it: "One of the leading features in the floral arrangements at the opening of the premises of the general Horticultural Company (John Wills) Limited, at Warwick House, Regent Street, on Monday last, was some very fine specimens of *Wistaria sinensis* growing in tubs as standards, with large heads 5 to 6 feet in diameter, densely covered with heads of bloom of fine color. These plants were obtained from Rouen, and it is supposed they are from thirty-five to forty-five years of age at least, and were originally grown up from cuttings. As decorative agents in spacious conservatories at this season of the year they can scarcely be surpassed, and some of our English nurserymen would do well to attempt the culture of plants of this character. So completely did they strike the popular taste that there was quite a competition to become purchasers of them, and large sums were offered by those anxious to possess them. The general public, unaccustomed to this fine Chinese climber, looked on with wonder at 'lilacs' of such unwonted size and beauty of color. Time is required to get good heads to such plants, but when obtained their beauty is above praise and their value great."

THE CEDAR OF LEBANON.—This interesting tree is not very common in America. It suffers like many coniferous trees, from cold, frosty winds when young, but if protected a little till it is eight or ten years old by other trees or wind screens, it is as hardy as most other coniferous trees. But whether seen under culture or not, every thing relating to the Cedar of Lebanon has an interest.

In the lately published part of the *Journal of the Linnean Society*, Sir J. D. Hooker published an account of the discovery of a variety of the Cedar of Lebanon by Sir Samuel Baker on the mountains of Cyprus. It is interesting to note that, though the botany of this island has often been examined, this is the first record of such a discovery. The trees were described by the monks of Trooditissa Monastery as existing only on the mountains between the monastery of Kyker and the town of Khrysokus. This is a pathless and almost inaccessible region. The monks considered the wood to be the Scriptural "Shittim wood." Sir Joseph Hooker describes the specimens forwarded to him through the kind offices of the Marquis of Salisbury as differ-

ing from the known forms of *Cedrus* in the shortness of their leaves and the smallness of the female cones. He thinks that the now far-separated cedars of the Himalaya, Lebanon, the Taurus, and Algeria were races of one formerly more generally distributed tree, and that their isolation was due to geographical and climatic changes in the area over which the species was distributed. Their isolation is now very great. The nearest point to the Lebanon at which cedars have been up to this found is the Bulgardagh chain of the Taurus in Asia Minor, and from that point forests of *C. Argentea* extend eastward to Pisidia and northwards to the Anti-Taurus. At a distance of some 1400 miles from the cedar forests of Asia Minor, and separated from them by the whole breadth of the Mediterranean Sea, are those of Algeria, containing the Atlas cedar (*C. Atlantica*). Proceeding eastward from the Lebanon we come after another 1400 miles to the cedar forests of Afghanistan, which extend thence continuously eastward along the Himalaya almost to the confines of Nepal. This cedar (*C. Deodara*) is perhaps the most distinct in habit of the three forms. As to the Cyprus cedar, Sir Joseph Hooker says that, in size of cone and size, form and color of leaf, it approaches the Algerian far more closely than it does any Taurian, Himalayan or Lebanon cedar.

ROSE LA FRANCE.—M. Guillot, Jr., Rose grower, 27 Chemin-des-Pins, Lyon-Guillotière (Rhône), is the raiser of the magnificent rose under notice. M. Guillot, Jr., gives the following particulars as to how he obtained this splendid rose:

"In 1864 I sowed a tolerably large quantity of Tea Rose seeds, which came up well; amongst those numerous seedlings I selected a few of the best, which have since been sent out. Amongst these young roses one particularly struck me as being totally distinct from all my other Tea Rose seedlings, and by its flowering the first year I took special care of it, and propagated it through grafts, which the following year produced much finer flowers than those of the parent plant. It was then that I found my rose was really extra good. I selected good strong stocks and budded them with the best eyes from my limited stock, and awaited with impatience the advent of the blooming season of 1866. Imagine my great joy when beholding those magnificent roses, and to find in this acquisition a rose of especial merit. I then propagated the

rose in tolerably large numbers, so as to enable me to send it out in November, 1867, under the name of La France, in every respect worthy to bear that name. Before being sent out I exhibited it along with several other seedlings at the Paris Universal Exhibition of 1867. Every one of the fourteen blooms of La France I then exhibited measured about five inches in diameter. The Jury, which should have met that day according to the programme, did not appear until two days after. My roses were already drooping and withering; the Jury therefore could not give them any prizes, but to indemnify me a single bronze medal was awarded to my whole collection, comprising all my seedlings—two hundred dwarfs and two hundred of the choicest varieties, which were in a group at the Champ-de-Mars. I cannot," adds M. Guillot, Jr., "give the pedigree of my Rose La France. Considering the great number of seeds I sowed in 1864 I could not well sow each variety separate; but judging from its wood, eyes, foliage and flowers, I come to the conclusion that its parents were Tea Roses, and that it does not possess a single characteristic of other hybrids."

Here is a first-class rose, the high qualities of which have been but poorly rewarded, but has been appreciated by the lovers of all nations, and that is the best encomium that can be passed upon it.—*Journal des Roses*.

THE GLOBOSE-SEEDED PHÆNOSPERMA (*P. globosa*).—This is a very distinct new ornamental grass, producing an erect tuft of broadly-lance-shaped leaves, which are bright green above and glaucous below, with prominent ribs. The panicles rise above the foliage, and consist of several whorls of branches bearing globose spikelets. It grows to the height of four or five feet, and is a native of China.—G., in *Garden*.

QUERIES.

ANTS.—F. W. D., Baltimore, Md., says: "I would like to tell Mr. Meehan that the garden ants are a great plague to me, and would like to see in some future number what is the best means of riddance and protection, if I have the right or may take the liberty to ask or suggest such a question."

[A little gas tar put into their holes, or about where they are will drive them away.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

NOTES OF FUCHSIA SERRATIFOLIA.

BY C. E. P., QUEENS, N. Y.

Among the many varieties of Fuchsias that have been introduced into cultivation, the *Fuchsia serratifolia* is one of the most distinct, and is worthy of being more extensively cultivated than it is. As it is only to be found in a few collections, I desire, with your permission, to call the attention of the readers of the MONTHLY to this magnificent plant, and I hope that some of them will give it a trial, as I am confident that they will find it to be a most desirable addition to their collection of Fuchsias.

Fuchsia serratifolia is a robust growing species, attaining a height of from eight to ten feet, and in habit it is stiff and bushy, with a stout erect stem and large leaves of a rich green color, the flowers being produced one from the axil of each leaf, and one from 1½ to 2 inches long, and consist of a long rosy tube tipped with yellowish green, the petals being scarlet with a shade of orange, and as the flowers droop and hang below the branches they always present an elegant appearance. It is said to be a native of Peru, and flowers from November to March.

This *Fuchsia* requires a somewhat different mode of treatment from the summer flowering varieties. The best mode of cultivation is to take cuttings of the strong and healthy shoots about the first of March, and as soon as they are rooted, pot them off into three-inch pots, and place the plants in a light, warm place, where they will not become drawn, and as soon as the pots become filled with roots, shift into five-inch pots. As soon as all danger of frost is over, turn the plants out into the open border. The plants should be tied to neat stakes, and must be pinched back occasionally so as to form nice bushy plants. About September 10th take them up carefully and pot them, place the plants in a close place until they have taken hold of the soil. After they have taken hold they can be exposed to the sun until it is time for them to be taken into the house, where they will bloom finely during the winter months if grown in a warm, light place. After the plants

have ceased to flower, they can be cut back into shape; turn them out of their pots, and re-pot them into as small a sized pot as is possible; but do not crowd the roots too much. As soon as they commence to grow, shift into larger pots and treat them precisely as recommended for young plants. The plants can also be plunged in the border during the summer months, but I prefer planting them out, as the plants do not require so much attention, and besides they will be found to be perfectly healthy when they are wanted for the house; while plants that are plunged in pots are too often found to be unhealthy in the fall, when it is too late to afford them any remedy. For potting-soil I use two parts of well rotted sods and one part well rotted manure. I give the pots good drainage, and give liquid manure-water, weekly, during the time the plants are in blossom.

NEW LIFE GERANIUM.

BY MRS. M. D. W., YARMOUTH, MAINE.

Had this novelty maintained its original price I would never have been its happy owner; but when it fell from \$5.00 to 50 cents, one could quite well afford to add such a very distinguished plant to a collection.

Mine came to me in winter, hundreds of miles, when the days were intensely cold, and a severe snow storm raging—the Venner storm—but when I opened the box, there it was, as pert and bright as though growing in its sheltered, sunny home, its cluster of buds revealing here and there a bit of color, one pip so far open as to show the white stripe on the deep scarlet ground. Day after day those buds expanded into bloom, no two alike in their markings. They were striped, splashed, dotted with white. How I admired the pretty thing!

New Life has not been homesick at all in her new home, judging from her health and growth. No sooner had that first truss bloomed and died than new buds sprung forth, and new leaves have grown.

Mr. H. Cannell, of London, England, its originator in our Centennial year, says of it: "Its propagation will not cease until it is seen cultivated in the windows and gardens of every

cottage in the land. He sold the first 1,000 by subscription only, at £1 each. It has had an immense sale in Europe, and we believe that when fully known, it will be widely diffused through our own country.

CULTURE OF PIMELIA HENDERSONI AND OTHER PLANTS.

BY J. FYFE.

The excellent hints on this topic by the editor of the GARDENER'S MONTHLY, from time to time, has induced me to note a few of the beautiful genera which compose the flora of New South Wales, and which might be grown in this climate, were the structures for them shaded during the hot summer months, and plenty of air admitted to all parts of the house. Or still better, remove them to frames exposed to a northern aspect, with the sashes ready to be drawn on when heavy rains are expected, and where they could be plunged up to the rims of the pots in clean sand; this would keep the roots nice and cold, and save the fine fibre of the balls of the plants from suffering from extreme heat, as they would were the pots exposed to the scorching rays of the sun. All the genera from this region are interesting. What can be finer than the acacias in their numerous species, *Eucalyptus pulverulenta* for the beauty of its foliage, and *Leptospermum baccatum* for the profusion of its beautiful star-like blossoms. The *Pimelia* tribe, of which the variety *Hendersonii* stands first, I feel interested in, as I had the management of the propagation from the original stock of this plant, having at that time charge of the house department of Messrs. Eagle & Henderson, nurserymen, Edinburgh. This variety of *Pimelia* has obtained great fame in Britain, and it is to be seen in most cases included in the collections of greenhouse plants for competition at the various horticultural societies' meetings throughout England and Scotland. In regard to its propagation, it will strike pretty freely if the wood is taken at a proper stage of growth, that is neither too soft nor too hard, and inserted in a compost of three parts sand and one of peat, in pots half filled with drainage, the drainage to be covered with spongy peat, with compost firmly pressed together. Cuttings must be covered with bell glasses, which must be taken off and wiped dry every day. The most success I ever had in extending this beautiful plant was by bark grafting on the old

variety *decussata*. I need not detail what bark-grafting is, as it is known to all gardeners. The stocks of the variety *decussata* can be readily obtained from seeds, as this variety of *Pimelia* seeds freely, and in America, where all plants seed abundantly, I have no doubt it would produce seeds freely, as it does pretty well in Britain. Both it and *Hendersonii* if taken care of, and not exposed to drenching rains and very low temperature; indeed all the genera from New South Wales, may be successfully cultivated in this climate, if some degree of care and attention be paid to them, and no gardener need fail in cultivating them if inspired by the love of his profession and determined to excel.

CUT FLOWER TRADE.

BY W. E. MEEHAN, PHILADELPHIA.

The cut flower trade for some years has been growing with wonderful rapidity, till now in New York city alone the business has reached several million dollars annually. Growers of cut flowers realizing that the day has gone by for the raising of general mixture or "trash," as it is termed, now confine themselves principally to forcing two or three articles and growing them well. Thus we find on Union Hill, near Jersey City, one man who confines himself to growing tea roses, Jacqueminot roses and violets another to forcing Lily of the Valley, hyacinths and lilies; while still another puts all his energies in the cheaper but just as important carnation, *bouvardia* and *smilax*.

Fashion wields her iron sceptre and dictates to her votaries the kinds and colors of flowers to be used, as she does in everything else. Last winter she decreed yellow, and Neil roses and sunflowers and yellow pansies were in demand.

The forcing of roses is perhaps the greatest branch of this great industry, and the quantity consumed is enormous. It is impossible to even estimate the quantity. It is known that in Philadelphia, at one of the Assembly balls, that not less than twenty thousand tea roses were used, beside Jacqueminot and other kinds. At one affair, in New York, over five thousand tea roses were recently used in the decorations. The five or six principal commission dealers in Boston, New York and Philadelphia probably pass twelve or fifteen thousand tea roses through their hands daily. When it is considered that the roses that these gentlemen sell are the surplus required, it may give some faint idea of the

quantity consumed in the three cities. It is asserted that one firm of growers in New York cleared over twelve thousand dollars in one season in Jacqueminot roses alone.

Of course this was an exceptional case, and the growers sometimes lose heavily. For instance, one firm down East undertook to grow Marechal on a grand scale, and the result was a break in the market, and a twenty five dollar bud sold for three dollars a hundred, productive figure being about five dollars at that time.

In carnation blooms the quantity consumed is still more enormous. One commission dealer last winter passed through his hands an average of fifty thousand a month between November and April, and then complained that he had not enough to supply the demand. He sold nearly thirty thousand to one firm in one month, and he was informed that that was two thousand a day less than his customer used, or ninety thousand and that month consumed by one firm. There are probably from ten to thirty thousand carnation blooms used in Philadelphia daily, and sometimes more.

A few years ago Lycopodium was used almost entirely for filling bouquets. Now it is almost altogether discarded, and smilax has taken its place. So enormous is the consumption of this plant, that there are growers of it entirely. One man in Philadelphia who raises it in connection with one or two other flowers, has cut, to date, nearly ten thousand strings, and this is a mere drop in the bucket to the amount grown.

For the Grant procession in one of our Western cities, over five hundred strings were used to decorate the hose carriages of the fire department.

Lily of the Valley plays an important part in the trade, one gentleman in Newport having several houses of it, and is so skilful in blooming it, that he is enabled to have it the whole twelve months of the year. One firm in Philadelphia also possess the secret. Of necessity the quantity consumed of this flower is much less than that of some of the other leading things. Still thousands of dollars annually pass into the hands of the growers of this gem among flowers.

Of the cities in the Union, New York and Boston each consume the greatest amount, Philadelphia next, among the Eastern cities, and Chicago and Cincinnati of the Western ones. The two latter, and in fact most of the cities and towns, north, south and west of New York and Boston, draw their heaviest supplies from the

two last mentioned cities and from Philadelphia. The trade is still in its infancy, and before many years it is safe to say that the cut flower business will be one of the most important of the trades that supply the luxuries of life.

CARNATIONS.

BY E. FRYER, DELAWARE, OHIO.

The variety called Peter Henderson, sent out by Nanz & Neuner, a few years since, I have found to be the best white I have yet grown for winter bloom. It is a stronger grower and better bloomer than Degraw, and is the nearest to a pure white we have yet found, its only drawback being that it runs up high like La Purite, requiring much head room. Snowden, sent out by P. Henderson, is a true dwarf, pure white, and if it proves a good winter bloomer, will probably supersede all other whites, the flower being of fair size and very fragrant.

Bock's Seedling, Charles Sumner—I have grown the past winter. The flower is of enormous size, almost as large as a rose, but they invariably burst before opening, and are a dull, unattractive color.

Waverley I have also grown last winter. A splendid variety, rich crimson scarlet; the color was in no way exaggerated, as represented in the MONTHLY a year ago; produces a fair average number of flowers to the plant; flowers selling readily at ten cents each. I think this is the most useful variety of its color to the commercial florist. While I appreciate every new variety of merit, I still cling to the old carmine, La Purite, which for quantity of bloom, size of flower and general good qualities, I think has not been beat by any of the newer varieties for winter bloom. I do not find it subject to the disease that many complain of, yet don't take any special pains with it. I grow them in half rotted turf or sod, cut from strong, loamy, meadow land, with a good addition of well-rotted manure on the benches, as near the glass as the growth of the plants will admit. Florists would benefit each other by comparing notes on this useful class of plants.

EARTHEN FLOWER POTS.

BY ROBERT TROTTER, WILMINGTON, DEL.

Seeing in the GARDENER'S MONTHLY of June an inquiry as how to make earthen flower pots, I have made and grown bedding plants in them for the last seven years, and have been very successful. I make three or four-inch pots—any

man, or even a boy, can make five or six hundred in a day. I dry them on a flue in the greenhouse. In two nights they are fit for use. I generally make mine in January, when heat is needed. Any person who wishes to see the pots or plants growing in them can do so at the residence of Mrs. Admiral Dupont, Louviers, near Wilmington, Delaware. Any person who wishes to have full information can obtain it at very little cost by applying to Robert Trotter, Dupont box, Wilmington, Del.

STEAM HEATING OF GREENHOUSES.

BY E. H. ROCHMAN, PITTSBURG, PA.

I have frequently been spoken to by friends to give people interested in horticultural progress, and especially in the construction and heating of greenhouses, the benefit of the results obtained by my method of heating greenhouses by low-pressure steam.

As the last two numbers of the MONTHLY contain articles on the subject, or rather against the practicability of that mode of heating, by Mr. Josiah Salter, of Rochester, N. Y., I thought best to take up Mr. Salter's arguments point by point, and prove their entire fallacy by actual results obtained during four continued seasons in one instance, and two seasons in another, on a scale sufficiently extensive to prove what I claim, viz., that a properly constructed heating apparatus by low-pressure steam is: first, absolutely safe; second, far more efficient than any other; third, economical of fuel as against any other; fourth, economical of attention, neither requiring an engineer, nor even as much attention as the hot water system; fifth, in cleanliness it will compare favorably with any other mode; sixth, one of the greatest of its merits is the ease of regulation to any desired temperature to a degree which we know no other mode of heating is capable of; so much so, that you may keep any number of houses, each at a different degree of temperature from any other, though all heated by one boiler; seventh, that the quality and health of the plants grown by low-pressure steam challenge comparison with those grown by any other method; eighth, that you can heat any quantity of glass, no matter how uneven the levels of your houses, or whether they are connected or not, from one central point; ninth, that with all the forementioned points in favor of low-pressure steam, the first cost of the apparatus is considerably less than that of any good

hot water apparatus able to do the same work, which difference increases with the extent of the space to be heated; or in other words, the greater the amount of heating to be done, the greater the saving in first cost of apparatus as compared to hot-water.

Before I proceed to substantiate and prove the above-mentioned points, let me state some actual results obtained. In the fall of 1876 I built the first of my low-pressure steam apparatus for the greenhouses now operated by Messrs. R. C. Patterson & Bro., on Ellsworth av., of this city; they contain 9000 feet of glass, all with one exception low span-roof houses, 12 feet wide, 7 feet high at ridge-pole, walls about 3½ to 4 feet high, used for general assortment of bedding plants; one house 50 feet long, 12 feet wide, about 11 feet high, used for tall plants, smilax, etc. About one-half of the above area is kept in winter at a temperature of 45° to 50°, the balance from 60° upward. This has stood four seasons' use without the expenditure of one cent for repairs, excepting the replacing of a smoke stack by a brick chimney; it has been operated from first to last by ordinarily intelligent greenhouse hands; it has from the beginning worked like a charm; the plants sent out from the establishment certainly invite comparison, and the amount of fuel has been so trifling that the Messrs. Patterson have not thought it worth while to use any device for taking the condensed steam back to the boiler, (a sixteen horse power tubular) continually wasting the same into the sewer while taking a steady stream of cold water into the boiler to replace the condensation. The establishment consumed forty-five tons of bituminous coal (principally nut coal and slack) at a cost of \$95.00 during the season of '79 and '80; in an ordinary severe season they use of course proportionately more, and from 60 to 70 tons of bituminous coal is probably a high average.

During 1878, I erected the establishment now owned and operated by Messrs. A. R. Reneman & Bro., of this city, it contains upward of 30,000 feet of glass, constructed as follows:

Five low span-roof houses 12 x 100, 7½ feet high under ridge-pole; three forcing houses, each 24 x 132 feet, built on a side hill, one above the other, about 12 feet high under ridge-pole; one house 24 x 112, built on terraces with the grade of the hill, will average 14 feet high; one low house 10 x 132 feet; one low house 6 x 132 feet. This concern makes a specialty of growing cut flowers, and devotes large areas to stove plants

and others requiring a high temperature so that about two-thirds of the whole space had to be supplied with pipe sufficient to maintain at least 55° in the coldest weather. It contains in round numbers 7,000 feet of two inch pipe, all heated by boiler (a fifty horse power ordinary locomotive boiler). As in the other case, it has been operated by ordinary greenhouse hands, never requiring the service of an expert; and the products of the establishment, both plants and cut-flowers, invite comparison, and are a credit to the intelligent management of Mr. F. Wuttke, who has been in charge almost from the beginning.

This apparatus is supplied with a device for returning the condensation to the boiler, which it does automatically and without the slightest attention from any one, although a large portion of the heating pipes are below the water level of the boiler. It is not supplied with any damper-regulator or other device to regulate or feed itself during the night, for the simple reason that it was thought unwise to leave such an establishment without a watchman at any time; as it is, it will compare favorably with any other apparatus as to economy of attention.

The cost of this apparatus was much less than two-thirds the cost of hot-water as per price-lists and discounts obtained at the time.

The amount of fuel used during the season of '79 and '80, as per account of the superintendent, Mr. Wuttke, was 4,000 bushels of bituminous nut coal, equal to 152 net tons, or 135 gross tons; or in an ordinary severe winter, about 200 gross tons, at an average price for coal here of 7 cents per bushel. Every square yard of plant growing space (that is counting only the area of the benches and beds, and not that occupied by walks) is heated by an expense for fuel of 20 cents for the whole season.

After giving the above actual results, obtained through several seasons, which practical men will consider worth any amount of theories whether pro or con, I will endeavor to show Mr. Salter where his theories as to the unsuitability of steam as a heating medium are at fault. I hope I need hardly say to Mr. S. that in doing so I am only trying to respond to his invitation to elicit information on the subject.

Mr. S. admits that probably heat might be gotten up more quickly to a certain degree by steam than by hot water, though he thinks that the effects of the fire will be felt sooner by the latter method. How much heat will Mr. S. get out of

his water pipes in, say thirty minutes after starting the fire? It takes about that time to raise fifteen pounds of steam in the fifty horse power boiler above referred to, after which, by opening one valve you have your heating pipes hot in two or three minutes. I doubt if Mr. S. would have his fires started thoroughly in all the boilers which would be necessary to heat the concern by hot water by the time you can raise the temperature in all the eleven houses of Renemans five degrees.

Now as to one of the most frequent queries in regard to the kind of heat obtained by steam, I wish to say that the amount of misconception on that point even among professionals is something wonderful. Isn't the heat obtained by steam pipes too dry for plants? This is the question asked with almost never failing regularity, and my answer is, no, and a thousand times no. Heat, *per se*, has nothing whatever to do with moisture; you will get as much moisture out of a cast-iron hot-water pipe as you will out of a powder-horn or out of a steam pipe; what moisture you want in the atmosphere of your greenhouse you must apply externally, and you do so apply it, whenever you feel the air too dry, by syringing or watering, wherein the steam heating has the great advantage that you can restore the desired moisture in the shape of a vapor bath, which comes nearer nature's own operation of dew for the same purpose, and which process the most delicate plants delight in to the highest degree, when they would be positively injured by ever so gentle syringing. You will dry up the atmosphere of your houses precisely to the same extent, no matter which heating medium you use, according to the temperature you maintain, no more with steam and no less with hot water.

As for the gift of continuance of our heating medium I readily admit, that should our fire go out and the boiler cease to make steam, the temperature of the house would fall very rapidly, certainly more so than if heated by hot water, but steam is capable of being regulated to the fraction of a pound by automatic devices, which hot water is not; and as for the fire going out for the want of fuel, has Mr. S. never heard of the Magazine Base-Burning Stove, which may be safely left for ten or twelve hours with the certainty of finding a pretty good fire at the end of twenty?

Again Mr. S. says steam is not simple enough and not to be trusted to the care of boys or laboring men without danger of condensing or

bursting, while any possible mishaps to the hot water system would be mere trifles. My experience as a florist is precisely the opposite, and I dare say I stand by no means alone. I have had hot water pipes burst so seriously that the repairs necessitated the complete stoppage of circulation, in fact the emptying of the pipes, and the mere good fortune of a mild spell of weather at the time, alone saved the contents of 12,000 feet of glass from utter destruction. Now suppose such an accident, however unlikely, had occurred to steam apparatus, what would have been the consequence? You would merely shut off that one pipe by its supply and condense valves, take apart the nearest union and repair the damage at your leisure, while all the other pipes in your house are working just as usual. We do occasionally hear of steam pipes bursting under high pressure, but have you ever heard of any doing so at a pressure of 20 or 30 pounds, (which you seldom exceed in the most bitterly cold weather) when they are or ought to be tested to at least 150 pounds?

Your boy or laboring man cannot neglect his duty without receiving a warning. If you cannot trust his intelligence, let your foreman or yourself set the damper-regulator to whatever pressure experience will teach you is necessary for a certain temperature, see that your magazine is filled, and he can do no mischief except by intentional malice, against which, your hot water apparatus is as little proof as any other.

With steam heating you are absolutely in the position to laugh at Jack Frost, while with hot water, unless you put in far more pipe than you need in average cold weather, you are at the end of your string when you bring your water to the boiling point. With steam you simply add a pound or two more to the pressure with the comfortable assurance of a snug little reserve force of forty or fifty pounds, which you may use with perfect safety, but which are never called upon. Mr. S. says that steam has never proved effectual for horticultural purposes, as far as he knows, and has been abandoned wherever tried. I venture to say without fear of contradiction, that in every such instance (and I have heard of one myself through Mr. Peter Henderson) the cause could be plainly demonstrated to be a violation of quite well understood scientific principles in the construction of such apparatus. I know of two extensive florists' establishments in Chicago heated by steam, giving entire satisfaction, although they were, in

my opinion, far from being perfect in construction. I might easily still more enlarge upon the advantage of steam over hot water, but I feel this communication is already much longer than I intended, and for which Mr. Editor, I crave indulgence both from yourself and your army of readers.

GOOD GREENHOUSE PLANTS.

BY J. FYFE.

There are no doubt many among your readers who are interested in beautiful greenhouse plants, and I have thought the accompanying list of the best of these from New South Wales and other parts would be of use to them:

Leptospermum scoparium,	Blandfordia princeps,
Scottia dentata,	Clianthus puniceus,
Chorizema Henchmanni,	Brugmansia sanguinea,
varium,	Eugenia myrtifolia,
Boronia serrulata,	Illicium floridanum,
Hovea Celsi,	Pleroma heteromallum,
Correa speciosa,	Ixora coccinea,
Dillwynia floribunda,	regina,
Eutaxia pungens,	Combretum purpureum,
Pultenia daphnoides,	Quisqualis pubescens,
Daviesia latifolia,	Epiphyllum truncatum,
Crowea saligna,	Clerodendron Balfourii,
Eriostemon buxifolius,	Plumbago Larpenae,
Bossiaea ensata,	Amherstia nobilis,
prostrata,	Dipladenia Brearleyana,
Platylobium ovatum,	Ipomea Horsfalli,
Callicoma serratifolia,	Manettia coccinea,
Callistachys lanceolata,	Erythrina cristigalli,
Callistemon pungens,	Coleus pictus,
Brownea rosea,	Artocarpus cannonia,
Pimelia Hendersonii,	Dioscorea illustrata,
Leschenaultia formosa,	Eranthemum tricolor,
Ruella ciliata,	Eucharis candida,
Dracophyllum gracile,	Griffinia ornata,
Andersonia sprengeloides,	Gustavia gracilima,
Styphelia tubiflora,	Hibiscus rosasinensis fulgidus,
Grevillea pumila,	miniatus semi-plenus,
Gompholobium Knightianum,	Laportea Schomburgkii versicolor,
Jacksonia scoparia,	Maranta Leopoldina,
Podolobium trilobatum,	Spathiphyllum pictum,
Swainsonia galegifolia,	Carmoria Wallisia,
Kennedyia monophylla,	Dieffenbachia nobilis,
Tetratheca ericazifolia,	Aphelandra cristata,
Melaleuca thymifolia,	Curculigo recurvata variegata,
Erica Linnaeoides,	Doryanthes excelsa,
ventricosa nana,	Palmeri,
superba,	Lapageria rosea et alba,
coccinea,	Passiflora princeps racemosa,
Bothrocliana,	quadangulata,
Irbyana,	Stephanotis floribunda,
retorta,	Allamanda cathartica,
jasminiflora,	Bignonia venusta,
aristata,	Rondeletia speciosa,
tricolor,	Thunbergia laurifolia,
ampullacea,	Pentas carnea,
aristella,	Melastoma sanguinea,
Cliffordiana,	Hoya bella,
princeps,	Franciscea magnifica,
Hartnelli,	Aeschynanthus grandiflora,
pregnans,	Eccremocarpus scaber,
Epacris grandiflora,	Euphorbia jaquiniflora,
campanulata,	Lophospermum scandens,
alba,	Rhodochiton volubile,
impressa,	Maurandia Barclayana,
purpurea,	Pterodiscus speciosa,
rubra,	Lasiandra macrantha,
Farbarnii,	Sparmannia Africana,
Luculia gratissima,	Alonsoa incisifolia,
Mandevilla suaveolens,	Amayllis hippeastrum ignescens,
Lisianthus Russelliana,	Corynostylis Hybanthus albi-flora,
Kalosanthes coccinea,	Anthurium candidum,
Daphne odora,	HARDY.
Sutherlandia frutescens,	Lilium Humboldtii,
Polygala latifolia,	tigrinum flora pleno.
Metrosideros capitatus,	
Enkynanthus quinqueflorus,	

NEW DOUBLE VAR. SWEET ALYSSUM.

BY MRS M. D. W., YARMOUTH, ME.

Single variegated Sweet Alyssum is not a novelty, but this year I am indebted to Mr. John Goode for a double variegated, appropriately named the Gem. Seeing it advertised in the *Horticulturist*, I sent for one, and one terribly bitter, stormy evening it was brought me from the office, safely cradled in a pasteboard tube, with wrappings of cotton and moss. The little darling was a beauty, with its pure, waxen buds and blossoms in a setting of delicate emerald and white; just as pert as though it were fresh from the greenhouse, instead of having taken a journey of nearly three thousand miles, and through a snow storm, too.

FLORAL GOSSIP.

BY EDWIN LONSDALE.

We must not place the rose "American Banner" in the same category with rose "Beauty of Glazenwood," for the latter was considered a fraud from the first time it was exhibited, by such judges in England as Mr. Charles Noble, Mr. Charles Turner, and others. The American Banner produces veritable striped buds, which sell in New York in January at \$25 per 100. Its rarity and novelty of course regulates the price, but whether it will become popular as a winter blooming rose will depend, I think, very much on fashion. Mr. Henderson has got a large and well-grown stock of it; so if any one feels like going into it on a large or small scale they need not have any apprehensions about getting all they may want.

All Mr. Henderson's pot roses were in fine health and vigor when I saw them. The show of buds which presented themselves would have done credit to many a bed of established plants. He finds the most sale for Niphetos, Safrano, Isabella Sprunt, Bon Silene, Cordelia Cook, Douglass and Perle des Jardines. The latter rose is now taking the place of M. Neil in some establishments, it being a free and continuous bloomer when properly grown, and the flowers are nearly as large and higher in color than the well-known "Neil."

The new carnation "Snowden" was pretty well used up for cuttings when I saw it. There is no doubt about its being dwarf, and for this reason alone it will be valuable, on account of its not needing much head room.

Carnations are not considered profitable by

some of the growers around New York; a disease gets among them, and gradually takes the whole lot off.

Mr. Wm. Bennett, Flatbush, L. I., grows carnations, the best, I think, I have ever seen. He grows Peerless largely, and King of the Crimson, the freest flowering and best dark colored carnation I have met with. Miss Jolliffe he has in large quantity; it is a delicate shade of pink. "Snow-white"—a kind sent out a short time ago by Mr. Peter Henderson—is proving itself to be a wonderful free bloomer, and the flowers are pure white. It is a decided acquisition. I have heard complaints that it does not possess sufficient vigor, but under Mr. Bennett's treatment it is certainly hard to beat. His treatment is to keep them quite cool at night, and to give them plenty of air on every favorable opportunity in the day time.

I am satisfied that the cool treatment is the proper one for carnations, and if all the growers around New York or elsewhere would adopt this mode of growing them, instead of a rose-forcing temperature, they would not have them in such a deplorable state as they were last winter.

EDITORIAL NOTES.

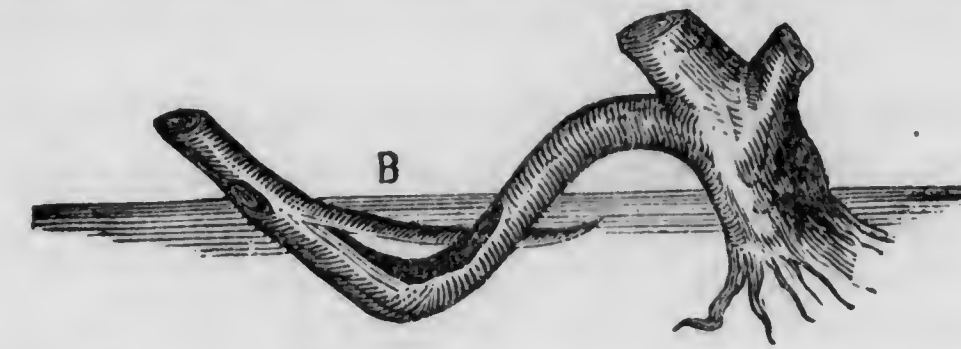
LARGE MARECHAL NEIL ROSE.—Mr. Pearson, an English florist, cut from one plant last year 2000 flowers. Probably some of our large rose growers could beat this. We should like to know.

IMPROVEMENTS IN PROPAGATING.—Possibly in no department of gardening has there been such wonderful progress made as in the art of propagation. It is pleasant reading to go back over the gardening of magazines of but a quarter century ago, and see how much was made of propagating houses, propagating tanks, propa-



gating glasses, and other *et ceteras*, and to note that the art of the propagator was ranked almost with art of the magician. Now all this is changed. Good common sense is yet needed to be a suc-

cessful propagator. Here before us is an old treatise on layering carnations, and cuts something like these, showing how things should and should not be done about. And then most of us older ones can tell of the days and days spent in bending over carnations as well as other things, slitting and rutching and pegging down carefully every little bit of wood that could be held between the finger and thumb. Now it is



so different. The carnation shoots, as well as the shoots of any other thing, are taken off in immense quantities, stuck in by the small boy in sand boxes, and these put in anywhere where it is a little warm, a little shady, regularly moist, without continued watering—and this is the whole art and mystery of the thing.

SCRAPS AND QUERIES.

ORCHID CULTURE.—Mrs. R. P. writes: "Permit me through your columns to return thanks to Walter Gray, of Philadelphia, for replies to inquiries as to orchid culture, &c., also for article on same subject by Chas. H. Snow, of Baltimore. In reply to the former would say that I had learned of the error in name of *Cattleya citrina*.

It came to me from the Patterson and Greenbrook greenhouses, labelled "*Odontoglossum citrina*," and I took it for granted that it must be so. I have since learned from Mr. Reynolds, of Brambleton, Norfolk, and also from "Williams' Orchid Grower's Manual," bought of you, of the mistake. I do not find that the plant labeled *Dendrobium nobile*, received from the same source, answers to Mr. Williams' description at all. Mine bloomed in February last; flowers were a deep pansy purple and pure white, beautifully marked, but smaller than I should expect from Mr. Williams' description. I have had no success with *Cypripedium barbatum*, but *C. villosum* was lovely, and the bloom was perfect—twelve weeks. I received also from New Jersey a plant with large fleshy leaves, bearing label *Bryophyllum calycinum*. I have sought a description of same from various quarters without success. Can you or any of your readers tell me of its nature and culture? Have owned it over a year, but see no signs of bloom, although it grows and seems healthy. I am pleased to see articles in your columns on orchid culture. I wish much to get together a sufficient variety to keep my little conservatory (6x12) bright with their bloom the year round, and will then discard therefrom all geraniums, but have not, as yet, been eminently successful. Can any of your readers tell me of a fine free flowering (white) climber, that will bloom in winter in conservatory which is heated from living room, without bottom heat?

I hope I have not tired your patience with the multiplicity of my queries."

FRUIT AND VEGETABLE GARDENING.**SEASONABLE HINTS.**

The Grape-vine at this season will require attention, to see that the leaves are all retained healthy till thoroughly ripened. It is not a sign of healthiness for a vine to grow late; on the contrary, such late growth generally gets killed in the winter—but the leaves should all stay on to insure the greatest health of the vine, until the frost comes, when they should all be so ma-

ture as to fall together. The leaves of Grapevines are very much subject to the attacks of the leaf-hopper which destroys them before their time. In large vineyards there is no help for it; but amateurs with a few vines can remedy this by syringing. A garden engine of some power ought to be in every well ordered garden. Grapes sometimes suffer when maturing from maurauding bees. Where these are very bad the only way is to put the best fruit in bags. There is

besides other profit in the practice, as the fruit of the grape is generally sweeter in our climate when matured in a little shade.

Although they require more care than spring set plants August and September are favorite months to plant out Strawberries, with those who desire a crop of fruit the next season. In making a strawberry-bed a warm, dry spot of ground should be chosen, with, if possible, a good loamy or clayey subsoil. A moist wet situation is very unfavorable. It is best to subsoil at least eighteen inches deep, and if the soil is poor, let it be moderately enriched with well decayed stable manure. In setting out, take care that the plants do not become dry from the time they are taken up till they are replanted, and see that they do not wither afterwards. Many persons cut off the leaves, if they are afraid of their wilting under hot suns, but a much better plan is to shade. Inverted 4-inch flower-pots are excellent for this purpose; they may be taken off at night. The dews will so invigorate them, that the shade will only be required for a few days. Sometimes in September they may need a good watering; but this should never be attempted unless a thorough saturation of the bed be given; and in a few days after, the hoe and rake should be employed to loosen and level the surface, which the heavy watering will, in all probability, have caused to bake and become very crusty. When pot-raised plants can be had, as heretofore recommended, fall planting strawberries is very successful.

A little trimming is useful to most trees at this season. The Blackberry and Raspberry may have their tops shortened so as to leave the canes about four feet. Some do this earlier in the season; but the buds are apt to burst if done too soon. In like manner, pear and apple trees that grow well, but produce no fruit, are benefited by having, say half of some of the young growth cut back. The buds then left are very likely to form flower buds, in place of growth buds for next season. Many take out the old shoots of raspberry and blackberry after they have done bearing, and we have in times past recommended it ourselves; but on further observation, we see very little good, if not positive injury. The partial shade the old stems make, seems rather beneficial than otherwise under our hot suns.

As soon as your vegetable crops are past kitchen use, clear them out. Never suffer them to seed. In the first place, a seed crop exhausts the soil more than two crops taken off in an eatable condition; in the next place, the refuse of

the kitchen is likely to produce degenerate stocks. Good seed saving is a special art by itself, always claiming the earliest and best to ensure a perfect stock.

Celery will require earthing up as it grows, to get it to blanch well. It is not well, however to commence too early, as earthing up tends, in a slight degree, to weaken the growth of the plants. Take care, also, not to let the soil get into the heart in earthing, or the crown is apt to rot.

As fast as Endive is desired for Salad, it should be blanched. Matting thrown over is the best for this purpose, as the plants are not so liable to rot as when pots or boards are employed.

In cold or mountainous regions, Melons are hastened in the ripening process, and improved in flavor, by a piece of tile being placed under the fruit.

Keep weeds from your compost heaps, as they exhaust the soil, and bear seeds for future browsings.

Sow Lettuce for Fall crop, thinly, and in deep and very rich ground.

Early Valentine Beans may still be sown early in the month,—the soil for a late crop should be well trenched, or, if the Fall be dry, they will be stringy and tough.

Cucumbers, Squash, and other similar plants, often suffer from drought at this season. Cold water does not help them much, but a mulching of half rotten leaves strengthens them considerably.

Cut down straggling herbs, and they will make new heads for next season.

Towards the end of the month, a sowing of Spinach may be made in rich soil, which will come in for use before Winter. That desired for Winter and early Spring use, is usually sown in September in this region. A few Turnips may also be sown for an early crop, but will be hot and stringy unless the soil is very rich.

Corn Salad is often sowed at the end of this month. It does not do so well in damp soil or low situation.

COMMUNICATIONS.

MARKETABLE PEAR TREES.

BY WILLIAM CUTLER, JUNCTION CITY, KANSAS.

As the MONTHLY is the best medium through which to reach our eastern nurserymen, you

will please allow me room to find a little fault and offer a few suggestions.

It is a fact well known that about nine-tenths of the standard pear trees planted in the West are grown in New York and Pennsylvania. These trees are grown according to their best judgment, judgments rendered by their ancestors in the fatherland generations ago, and have been passed from father to son, and neighbor to neighbor, until it now would be considered sacrilege to depart from them. Our objection is to the height of the top and the size of the tree.

A No. 1 standard pear tree as sent out by these nurserymen is 6 to 8 feet high, 3 to 5 years old, and branched about 5 feet from the ground. Now, Mr. Editor, if I was called upon to tell you what sort of a tree is most worthless in every State west of Ohio, I would hardly change the above description.

A No. 1 standard pear for the West should be 3 to 5 feet high, 2 to 3 years old, and branched 1 to 2 feet from the ground. The tops must come down as we go west, and for central and western Kansas six inches to a foot is high enough.

High tops cause the death of more trees than everything else combined, and it does appear to me that we are now using enough pear trees to make it pardonable if we ask you to raise a tree suited to our climate, and as you may think peculiar wants.

Among my earliest recollections, which date back to 1830 to 1835, I remember the old leaning, high-topped pear trees in New Jersey, many of them mere shells from the rotting away of the south sides.

These things caused no thought and no comment. They had been planted by our grandfather, who knew it would not do to have the limbs interfere with the horses' hames.

After living over twenty years in Illinois, and seeing the advantage of low-topped trees, I returned to the scenes of my childhood. These old trees were gone, compelled to succumb to the folly of the nurseryman who trimmed them. The thriftiest, and in many cases the only trees left in these venerable orchards, were the ones that chanced to have the lowest tops. The above applies to all fruit trees. But as we are able to raise everything except pears, as well or better than they can, I confine my remarks to that only for the present.

Now, Mr. Meehan, I hope your nurserymen will not get angry at me for hinting that they,

their fathers and mine, have made mistakes, but will go to work and raise us some nice little low-topped trees.

JAPAN PERSIMMONS IN THE ORCHARD HOUSE.

BY WM. T. HARDING, OAK HILL CEMETERY, UPPER SANDUSKY, OHIO.

A portrait hangs on the wall before me, and the benignant features of an upright and intelligent gentleman seem to gaze steadfastly from the frame, at the writer, and a kindly smile lights up the once familiar face, such as there used to be in days gone by. Any reader of character would readily pronounce the facial expression as noble, winsome and good. No "human face divine" could be more so than was the late Mr. Thomas Rivers, of Sawbridgeworth, England. He was old and gray headed, when the likeness was taken; while the placid serenity of ripe and honorable years lovingly lingered around the lineaments of one of the best of men.

When a student in the "art and science of horticulture," I sought his sage counsel, and was encouraged with his friendly advice; and while sharing his hospitality and enjoying his confidence, my young ideas were taught to shoot. As a trainer of trees, he was remarkably adroit. Nothing arboreal or herbaceous could be fairer fashioned than which passed through his hands. The vast quantities of standard roses, every tree "a thing of beauty," multiplied by thousands, testified to the skill of the good old rosarian.

Famous as he was in floriculture, he was even more so as a practical pomologist. That he was one of the most successful nurserymen and fruit tree growers, *par excellence*, of the nineteenth century is unanimously acknowledged.

The two excellent brochures under his signature, namely, "The Miniature Fruit Garden," and "The Orchard House, or Cultivation of Fruit Trees in Pots under Glass," are good guides to go by. The vim of the author and the vigor of his trees are perceptible in every line to the mind's eye of the reader, who follows his gifted pen. That such "reading made easy" for amateur fruit-growers, as well as practical cultivators, should win proselytes to pomology, is what might be expected. Our "kin beyond the sea" readily adopted his views, with most encouraging results. There, under canopies of glass, as well as on this side of the Atlantic, blossom and fruit many a goodly tree.

Of the writer's success in the "Orchard House," who may be considered an old hand at the business among fruits and flowers, it was well tested at Cleveland, several years ago, to the satisfaction of all concerned. During the months when the wind blew bitter and chill from off the frigid waters of Lake Erie, I successfully brought to perfection abundance of the under-mentioned fruits, namely: Peaches, Nectarines, Guavas, Plums, Apricots, Psidium, Figs, Loquots, Sweet Limes, Grapes, Sapodillas and Strawberries, from all of which good crops were gathered. They were grown from ten to twelve inch pots, except the strawberries, which were fruited in five and six inch sizes. The Figs, Peaches, Grapes and Strawberries began to ripen the first week in April, and they, with the others named, continued to reach perfection as the season advanced, until all were gathered.

They were forced, of course to bring them on so early, and therein lies the chief difficulty of management. No one, unless he has had previous practice, should attempt to grow them so early, as both patient attention and skill are required to counterfeit a season congenial to their nature. To manage them in the cold orchard-house is simple enough to any intelligent person who has a fair knowledge of fruit growing, and takes delight in such operations. The expense, too, is very moderate, when fire heat is not used. And what is there, let me enquire, which affords more real pleasure at less cost, than pot culture of choice fruit? First, comes the interesting season of swelling bud, and beauteous blossom, according to their kind, with the tender formation of incipient foliage, to the full development of leaf and branch, among which, nestles the rich swelling fruit unto luscious ripeness.

The positive good, which thus fulfills the promised expectation, is then to be realized, while the tempting fruit bends down the bough, ripe and ready to enjoy.

To the man who knows what is good and is able to get it, the orchard-house is the place to find it. There let him wend his way to pluck fresh fruit from vines and bushes, and feast among the nectared sweets which await him, and while enjoying the delicious offering Pomona presents to his fastidious palate, he will heartily thank God and the gardener for the rare things he revels in.

Enough, perhaps, has been said to make a man's mouth water, to indulge in the paradisaical luxuries the orchard-house produces, if he only

wills it should. There are other kinds, besides those mentioned, both suitable and proper for the purpose recommended, but they will amply suffice to begin with, if any one elects to try. Yet, incomplete as the subject is, it would be still more so, if the Japan Persimmon was suffered to go unnoticed. As the climate seems somewhat unsuited for its general cultivation in the Northern States, why not make a pot-plant of it for the orchard-house, warm or cold grapery, where it could be supplied with all the conditions necessary to perfect a new fruit, well worthy of cultivation?

In conclusion, had the good Mr. Rivers been living now, the Oriental persimmon would have been a God-send to him. He would have petted and petted it into fructification, not more for his own personal enjoyment, than for the diffusion of its worth among his fellow-men.

EDITORIAL NOTES.

MAKING THINGS PAY.—Those who make the most money in business are often those who have the knack of making two or more things work into each others hands. Now some people will go to work to make a business of poultry raising, and yet not make near as much profit on them as he who raises poultry and also has a good farm. The people who are settling on the dry deserts of Colorado, and have to irrigate by water from the snowy mountains, are now finding that they may as well utilize the water by letting fish swim in it, before using it for irrigation. When in Salt Lake some years ago the writer saw very successful trout ponds made from the mountain streams on the farm of Mr. Woodruff. Now there are companies expressly organized in some of these cities for the purpose of combining fish culture with the water supply. One has been recently organized in the city of Greeley.

FRUIT CULTURE IN ENGLAND is said to be declining, chiefly from the ease with which fruit can be imported from the Continent and from America; and also because the production under glass by artificial means has been brought to great success.

THE STEEL BLUE GRAPE BEETLE.—This well-known enemy of the grape, which bores out the young buds as they grow in spring, has proved very destructive the past season in the vicinity

of Doylestown, as we learn from the Bucks County, Pa., *Intelligencer*. A good remedy is much needed.

APPLE TRADE.—It is hard to decide which way the current of trade flows. The California papers of last winter had glowing accounts of successful and profitable shipments of apples to California; and now we have in London papers accounts of the "successful importation of one hundred boxes of apples from Adelaide by steamer Lusitania." It is hard to see what the apple wants to be thus wandering all around the world.

ARTIFICIAL WATER IN GARDENS.—Whenever we have heard people deride Colorado because they have to depend on irrigation for most of the water for their growing crops, we have thought that it would not be bad for eastern growers to have at command artificial conveniences. Strawberry growers east would have found a wind-mill for a water pump a paying investment for strawberry beds the past May. They were nearly ruined by the May drouth. Those who could have commanded a Colorado ditch would have made a fortune.

STANDARD GOOSEBERRIES.—It is now some years since the idea of grafting gooseberries was first introduced to the attention of American horticulturists by Mr. Bulot through our pages. The subsequent experience with the foreign plants at the Centennial led to the belief that on this stock they might be free from mildew, and we might have the foreign varieties in our gardens in all their luscious English perfection. But we have not heard of any trials with them. We understood Mr. Hooker was to take it in hand. What has he to say about them?

CRACKED PEARS.—Who ever has had anything to do with pears must have noticed how confused are the ideas of writers about pear diseases. We read of "pear blight," and "cracked pears," the writer evidently not recognizing that there are many distinct things under these names. Take cracking. That which we often see in the Giffard or the Beurre Diel is very different from that which we see in the St. Germain or the White Doyenne; and we must note these differences if we would reach a true idea of cause and cure. While a cracked Beurre Giffard may be had from a tree apparently with healthy growth, the White Doyenne and St. Germain trees always show a stunted growth. We have had a St. Germain tree before our eyes annually for

ten years, but never saw an annual growth of over six inches, and yet the tree stands by itself in very rich ground, where there is no reason why it might not make some shoots of a foot or two at least. Besides, that there is no defect in the opportunities for nutrition is evidenced by the dark green foliage. If the tree did not grow from poverty, it would have yellow and not green foliage. So with White Doyennes under similar circumstances. The leaves are always of a healthy green, but it would puzzle the propagator to get any sticks fit for budding from a crack-fruited pear tree. This fact should be borne in mind by those studying the diseases of the pear.

We have often heard that there is no such cracking known in the Old World, but we have from time to time shown that this is a mistake. If any further evidence be required, the following from the *Gardener's Record* may supply it: "A tree of White Doyenne pear, which had borne nothing but worthless, cracked fruit for years, had, three years ago, all its upper branches grafted with Autumn Bergamot, and the lower branches of the White Doyenne were suffered to remain. The growth of the Autumn Bergamot has been very strong, and their strength has been evidently communicated to the stock several inches below the point of union. On one of these branches a sprout of Marie Louise, growing just below the point of union, had been overlooked in the grafting, and the shoots bore last year clean, perfect fruit, all the rest of the tree being cracked and worthless as heretofore. The most probable influence in accounting for this is, that this shoot had received its conditions of health from the Autumn Bergamot shoot above it."

PAPER FROM GRASS.—The Irish papers are urging the feasibility of planting the Purple Melic Grass—*Melica purpurea*—on the bogs of Ireland, in order to encourage the extensive manufacture of paper.

EDIBLE EARTH.—We find the following in an English paper: "Dr. Lowe, New York, has recently tested a sample of earth eaten by the Ainos, or aborigines of Japan. Several pounds of the earth are mixed with the bulbs of Japanese lilies and boiled into a thick soup, which is reputed very palatable by the Ainos. Dr. Lowe finds it to be a silicious earth, in composition closely resembling other earths eaten in Java and in Lapland. It contains less than one per

cent. of nutritive matter. He appears to think, and we have no doubt he is right, that the unctuous feel of these earths originally suggested the idea of their nourishing qualities, and, once commenced, the eating has become a confirmed, and in most cases a diseased, taste." We suspect this is simply some newspaper reporter's story, who was desirous of earning his money by getting up a novel paragraph. The earth which comes to this country around the roots of Japan lilies is placed there by the Japanese to prevent evaporation. These bulbs, so treated, come in excellent fresh condition. Some of this material was given by the editor to one of the leading microscopists of the Philadelphia Academy of Natural Sciences, who reported that the organic materials had been added to the earth, for the purpose of binding it; just as in grafting clay the old school added horse droppings or cut straw. The idea of making an "infusion" of any "silicious" material for soup, is especially rich, whatever richness the soup may have.

PEAR COMTE DE LAMAY.—Though a small fruit, this variety is highly praised as a good autumn pear in England.

A LOVER OF PEARS.—It is said of Col. Wilder that every morning in the year he regularly enjoys his dish of well-ripened pears from his own orchard.

JOSEPHINE DE MALINES PEAR.—It is not uncommon to find letters from America, in European magazines, which tell very strange things. But a paper of another sort is one in the *Garden* of May 8th, by Mr. H. Hendricks, of Kingston, New York, on pear growing in the United States, which is very intelligently written, and is altogether a model for transatlantic letter writers.

We should not, however, have placed Josephine de Malines at the head of our winter list; but as the opinion of an intelligent and evidently conscientious writer, it is worthy of great respect. He says: "In winter sorts, strictly speaking, we have first and best of all Josephine de Malines, which, in its season, is superb and delicious, fit for the most discriminating palate. It is large and very productive, growing in clusters; flesh, light salmon color; tree hardy, but moderate in growth, owing to a tendency to overbear. I have kept fine specimens of this pear into April in this latitude.

SCALE ON ORCHARD TREES.—As already stated in our magazine, the writer of this applied pure

linseed oil to the scale on hundreds of his apple or pear trees with complete success, while others who have tried it complain that it injures their trees. Here is a modification of the plan by Mr. Tidmarsh, of the Grahamstown Botanic Garden in South Africa. The readers will understand by "paraffin" what we know merely as "coal oil." "Into a round-bottomed iron pot put eight pounds of soft soap and two quarts of paraffin oil; place the pot over a rather slow fire, consisting of embers only; with a stout stick, vigorously stir the mixture, till the soap has absorbed the whole of the oil; to the resulting paste add 20 quarts of water, boiling, if convenient; the mixture can now be left to simmer till the whole of the soap is dissolved, the result being a milky fluid, with little or no oil visible on the surface; the pot may now be taken off the fire, and stood aside till the liquid is cooled down to about new milk heat. The mixture may now be applied to the infected trees, a garden syringe being used for the purpose; the application should be so managed that every part of the tree may be covered with a thin film of the mixture; to effect this with as little waste as possible, screw on to the syringe, before using it, the rose end having the smallest holes; from which drive the mixture with force through and about the foliage and branches of the trees. When the plants to be dressed are in pots, let the branches of the trees be held over some vessel, such as a tin bath or a packing-case with a zinc lining, in order that waste of the mixture may be avoided as much as possible. Before removing the plants from over the vessel, shake the branches so as to dislodge any superfluous mixture, then place the plants in a horizontal position, till nearly dry, and thus prevent the oily matter running down the stems of the plant into the soil. Any portion of the liquid that may not be used at the time of making will keep good for months; a scum will form on the surface, but that will disappear on again warming and stirring it. This mixture is not at all difficult to concoct, but to insure a good result it is absolutely necessary to strictly observe the few words printed in italics. It is hardly necessary to observe that the number of pounds of soap and quarts of paraffin and water are simply quoted as proportions, the number of gallons of mixture made at any one time must be in accordance with the number and size of the trees requiring dressing."

APPLES FOR THE SOUTH.—At a recent meeting of the Texas Pomological Society, Mr. T. V. Mun-

son read a letter from Dr. Watkins, of Georgia, giving a list of twelve varieties of apples which his experience has proven best adapted to the Southern climate. The list embraces the Red June, the Astrachan, the Horse, Southern Greening and others, the names of which your reporter did not catch.

SCRAPS AND QUERIES.

YELLOW IN THE PEACH.—F., Trenton, N. J., writes: "In a recent number of the *Rural New Yorker*, a correspondent expresses an opinion that pollen from a diseased Peach tree used in fertilizing the flower of a healthy tree, would communicate the disease to the fruit, and in this way a healthy tree might produce seedlings which would have the yellows. As you have given some thought to this matter of Peach yellows, what do you think of this theory? [That the correspondent of the *Rural New Yorker* is undoubtedly correct.—Ed. G. M.]

FRUIT CULTURE IN NORTH CAROLINA.—N. W. C., Red Plains, N. C., writes: "Our country here will, in a few years, become one of the greatest fruit sections in the land, though this present season the fruit crop is very short, except the grape, which shows fair for a plentiful crop.

THE ORANGE GOOSEBERRY.—H. M. Engle, Marietta, Pa., writes: "We send you to-day Orange, Cluster and Houghton Gooseberries. You can judge their comparative earliness. We find the Cluster sold for Houghton, but the latter,—true,—has stronger thorns, more drooping habit, and never colors dark like Cluster. The Orange ripens invariably a week to ten days earlier than any other Gooseberry we have seen, and in quality consider it superior to any of the American Gooseberries. It has been almost neglected, but we intend multiplying it. What do you think of it?

[It seems like a very desirable variety.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

THE CONFUSED CATALPAS.

BY PROF. C. S. SARGENT, BROOKLINE, MASS.

Considerable confusion still exists in some quarters, it would seem, as to which of the two Asiatic Catalpas, now in general cultivation in this country, is *Catalpa Kämpferi*, and which is the Chinese *C. Bungei*. Of the two plants in question, one is a small tree 15 to 20 feet in height, with ovate leaves deeply heart-shaped at the base; small flowers and very slender pods. This plant flowers and ripens its seeds very freely. The other *Catalpa*, only known I believe in this country as a low wide-spreading bush, has narrow, long pointed leaves, wedge shaped at the base; this plant as yet shows no inclination to flower.

On the strength of the reference in De Candolle's *Prodromus* (Vol. ix p. 226) it is insisted (by the editor of the *GARDENER'S MONTHLY*) that the plant which, under the name of *Kämpferi*, is doubtfully referred to *Catalpa bignonioides* as to variety, is the dwarf plant with wedge-shaped leaves. De Candolle was, himself says, in doubt whether the Japanese plant was not *C. bignonioides* cultivated in Japan from America,

or an indigenous species very similar to it. But as no one has ever seen an American *Catalpa* with leaves wedged-shaped at the base, De Candolle could not have referred a plant with leaves markedly so shaped to *C. bignonioides*. He refers, too, the plant in question to the excellent figure on page 841 of Kämpfer's *Amenitales Exoticæ*, which exactly represents the foliage, flower and fruit of the small flowered plant with cordate leaves now common in cultivation, and to which being found specifically distinct, Siebold and Zuccarini have properly given the name of *Catalpa Kämpferi*. See their *Floræ Japonicæ familiæ Naturales*, p. 480. The dwarf bushy plant is a form of *Catalpa Bungei*, perhaps of garden origin, the species which according to Bunge (*Enum. pl. chin.* p. 45) becomes a large tree, is probably not yet in cultivation in this country, although it is included in the catalogue of the *Arboretum Seguzianum*. For further references to the bibliography of *Catalpa Kämpferi*, see Tranchet and Savatier's excellent enumeration of Japanese plants p. 326.

This view of the names properly belonging to these two plants is fully sustained by an examination in the Harvard Herbarium of several original Japanese specimens of *C. Kämpferi*,

collected by Maximowicz, and others, and by one of Bunge's original specimens of *C. Bungei*, collected in northern China and labelled in his own hand-writing. This specimen agrees exactly in foliage with the dwarf *C. Bungei* of gardens.

[Feeling satisfied that Prof. Sargent must have had some different plant in his mind from that which we had, we have retained this article on hand till we could visit Cambridge, and see the plants and specimens there. We now find that Prof. Sargent is correct in his view that the dwarf form, looking like a huge currant bush, and with leaves and shoots exactly like the common *Catalpa*, and which for the past thirty years has been distributed from continental nurseries as *C. Kämpferi*, is not that species. There is no doubt but *C. Kämpferi* is the small tree which has been in many cases known as *C. Bungei*.

We were, however, quite right in supposing that this dwarf kind could not be the *C. Bungei*, as described by Prof. Sargent. It may be that the true *C. Bungei* is in this country. There is a plant under this name in the Cambridge garden, but it did not seem to the writer to correspond with a specimen in Dr. Gray's Herbarium, or to be different materially from what we have now to know as *C. Kämpferi*; and we feel that it is best to wait a little while longer before deciding on what cultivated plant, if any, is really *C. Bungei*.

So far as we have gone the only certain points gained are these: The small tree with long slender pods is *Catalpa Kämpferi*; the dwarf form, like a huge currant bush, often called *C. Kämpferi*, must be called the dwarf American *Catalpa*, or if one wants it in Latin, *Catalpa bignonioides nana*. *C. Bungei* is something else.—Ed. G. M.]

EDITORIAL NOTES.

FOREST FIRES.—Our attention has been called to the following from the *New York World*:

"A lecture of Mr. B. G. Northrop, Secretary of the Connecticut Board of Education, on "Rural Improvement," has been published in pamphlet form, and deserves careful reading. An especially interesting portion of it, in view of the wholesale destruction of our forests year after year by fire and the dangers which are thus threatened, is that which deals with trees and tree-planting. Mr. Northrop urges importing and cultivating the European larch, which combines the three qualities of durability of timber, rapidity of growth and symmetry of form, and grows well in sterile soil

and on exhausted hillsides, where it will crowd out useless stubble and undergrowth. Hardly any other tree is so valuable as the larch in fertilizing effects, since its foliage is peculiarly dense, and, being deposited annually, forms in time a rich vegetable mould from which excellent pasture will grow. By the planting of this tree waste lands abandoned now to hardhack, sumac and other worthless brush may be reclaimed. It attains maturity long before the oak, and serves well for nearly all the purposes of that sturdy and storied tree, and from a mercantile point of view is much more valuable, a larch thirty years old sometimes selling for \$15, while oaks of the same age are not worth \$3 each. In Scotland, where the tree was first planted on the estates of the Duke of Athole, matured crops of larch of sixty-five years' standing have sold for from \$750 to \$2,000 per acre, when the land was originally worth but three or four dollars per acre. The extent to which tree-planting would be valuable in the reclamation of such regions as the sand-barrens of the Atlantic States, the shores of Florida, the Gulf coast and the eastern shores of Lake Michigan is indicated by Mr. Northrop in a quotation from Mr. George P. Marsh, who says that there is no question that the sand dunes of Denmark, which cover 160,000 acres, those of Prussia, extending over 110,000 acres, and in short the whole 7,000,000 acres of drifting sand in Europe, might for the most part be reclaimed by simple tree-planting. In France this work has been going on for some years and gives promise of great results."

We do not understand that Mr. Northrop's views in regard to the value of the larch is drawn from American experience. We have known of some cases where the larch has been raised and the timber seemed to be all that can be desired, but in other cases it has not proved to be as good as was expected. The larch is eminently a cool-country plant, and it is doubtful whether it will retain its value as a timber tree in hot ones. We should have more faith in White Pine than Larch as a profitable timber tree. Even in Scotland, referred to by Mr. Northrop, it is found that the larch is not as generally reliable as the quotation reference implies.

The point made about crowding out underbrush as a partial security against forest fires is a very good one. It is doubtful whether very serious fires would often occur, but for the accumulation of dead wood and withered leaves favored by undergrowth.

NATURAL HISTORY AND SCIENCE.

THREE VARIETIES OF ASCLEPIAS.

BY MISS M. EVELYN HUNTER.

Many varieties of the *Asclepiadaceæ* or Milkweed family, natives of Virginia, are now brightening the woods and fields by their showy flowers. Among others, the variegated Milkweed or *A. variegata*, with its compact rose-like heads, of nearly white flowers, with just a ring of purple belting each blossom as if to give it a right to its name, attracted my attention by its singular beauty as its white ball of flowers showed through the woods.

I made my way with difficulty to the spot where it grew, and found it as handsome on closer inspection as I had considered it from a distance. Its leaves were large, nearly smooth, and a rich deep green color. This grew about two feet from the ground, and was in full flower early in June. The next species I noticed was *A. rubra*, or red flowered milkweed, growing in an uncultivated field. Its leaves were oblong-ovate, tapering to a very sharp point, rounded or slightly heart-shaped at the base, its flowers, a dark red color, do not grow in the same compact mass at the summit of the stem as those of the first-named variety, but have a loose, disheveled appearance, which renders the plant unfit for garden decoration at present. I have an idea, however, that its ragged, straggling habit might be to some extent corrected by proper cultivation, and to those who understand such things I should think it might be possible to cross the *A. rubra* on the *A. variegata*, and thus get some of the erect compactness of the one to amend the faulty habit of the other.

These plants are as well worth our attention as many that are sold now by the florists, and making new varieties would give a different interest to their cultivation. Those who are denied the luxury of a gardener, and attend personally to their plants, have many compensations in the success that sometimes crowns their labors and in the feeling of individual interest in each plant. And although some of us make heavy mistakes in our treatment of them, close attention and observation of their tastes gradually teach us the secret of success even at the cost of many disappointing experiences. It is often

tiresome to give up an interesting occupation and go out to dig up a yellow half-dead geranium, but your interest is soon awakened in finding out the cause of its ill health, which sometimes proves to have been improper soil, or want of drainage, or even an ant-bed at the bottom of the pot, any of the above-named evils sufficiently accounting for its condition.

But I have wandered from the varieties of *Asclepias* to which I had intended devoting this article, and it would surely be incomplete with the Butterfly Weed or *A. tuberosa*, left out. It is not common for this plant to bloom as early with us, but this year I found its cluster of bright orange colored flowers in the latter part of May. The stems are round, very hairy, and of a reddish color; the leaves are scattered and supported on petioles little more than the eighth of an inch in length; they are deep green above, and much lighter on the under side. The flowers are situated in terminal corymbose umbels, and are brilliantly colored. The seeds, like the rest of the genus, are furnished with a long silky appendage. The root of this variety is highly spoken of for its medicinal qualities, and the genus to which it belongs takes its name from *Æsculapius*, the god of Medicine. As says Dr. Barton, in his description of it: "I have seen these three varieties blooming at the same time this year, and think by massing them and cultivating highly, a pretty bed might be made of them for the garden or lawn."

[There are few genera of plants more beautiful than the *Asclepias*, and if Miss Hunter's notes should lead to a better appreciation of them in garden culture, she will have rendered good service to floriculture. Some of them are delightfully scented.—Ed. G. M.]

THE RESURRECTION PLANT.

BY MRS. H. E. WHITE, BRYAN, BRAZOS CO., TEXAS.

A very odd plant was recently given to me that is a native of Western Texas. The roots and leaves seemed perfectly withered and dead. I placed it in a goblet of water, and in a few hours observed that the plant was absorbing the water and returning to life. The leaves when

withered had the appearance of a loose half-head of cabbage. As the plant revived the leaves unfolded, and, finally, when entirely resurrected, it lay perfectly flat; the color a rich deep green, and the leaves firm in texture and arborvitæ like in appearance. The plant seems to be neither moss nor fern, and yet is like both. After the resurrection I planted it in earth, and unless water is kept in the saucer the leaves begin to curl up. These plants can be kept dried, they say, for five years, and then when planted will revive and grow. I think they will prove admirable plants for ferneries and aquariums.

[The plant referred to by Mrs. White is no doubt a Lycopodium of the section Selaginella, and which is often brought to the North and grown in windows.—Ed. G. M.]

GROWTH OF TREES IN FROZEN SOIL.

BY J. M. ASHER, SAN DIEGO, CAL.

In your May number, page 151, in reply to E. F. H., you say * * * "Again cases, &c. * * * There is every reason to believe that in that severe winter the ground in that border was frozen two or three feet thick; but the grape-vine pushed into leaf and flower on the application of heat with the most perfect indifference to the frozen (?) roots, so far as any human eye could see. * * *

The "frozen roots" is what surprises me. It occurs to me that for once you took too much for granted. I have no doubt that the heat inside that house kept that border several degrees above freezing where the grape roots were. I think it freezes harder in Iowa, where I used to live, than it does in Pennsylvania, and there under manure piles the earth did not freeze, and at the edges of the heaps the ground did not freeze as deep as it did a few feet away. I think the radiation of heat from the house and through the border is what saved the vine to which you refer. If your reasoning be correct, what becomes of the theory of warm soils, etc.?

If foliation is entirely dependent on the warmth of the air, what is the good of letting the ground freeze twelve to fifteen inches deep, and then mulch to keep it from thawing out in the spring, and thus by retarding the growth save the fruit from late frosts? Will not the air about a tree mulched, say with a foot of manure after the ground is frozen be practically as warm as an unmulched tree twenty feet away? I have never found a cutting that would grow while

frozen, and your willow log is only a cutting. I have seen many cuttings grow for a time without roots, but as soon as the supply of food in the cutting was exhausted it died.

["Frozen roots" was not exactly what was meant. The frozen soil about the roots was the intention; for we do not believe any vegetable tissue ever becomes frozen in the ordinary acceptance of the term without dying afterwards. There is no more chance for continued life in a frozen root than in a frozen potato.—Ed. G. M.]

EDITORIAL NOTES.

WATER ON ROCKS.—Even the continuous dropping of water will in time wear away the hardest rock. Nothing in nature is absolutely still. Motion seems an inherent property of matter. In some cases this motion which seems immovable is greater than we have any idea of. It is said that the recession of Niagara Falls proceeds at a rapid rate, the falls having receded no less than thirty-five feet in thirty three years, while the centre of the Horseshoe cataract has gone back about 160 feet in the same period. In Lyell's "Antiquity of Man," a very important argument bearing on the duration of man's existence on the earth is based on the rate of recession deducible from many observations.

POISONING BY STRAMONIUM.—The Philadelphia *Public Ledger* says: "Mr. and Mrs. Chambers, Mrs. White and Mrs. Allen reside at 2450 North Fourth Street, the latter two being boarders. Mrs. Chambers formerly resided in New England, where a common herb known as 'pickweed' is used for food. On removing to this city she found a plant growing wild near her house, which she took for 'pickweed,' and one day last week she prepared some of it for food for the family, all four of those named partaking of it. Shortly afterwards all were taken violently ill, their symptoms being great thirst, partial blindness and deafness, and a sense of strangulation, with occasional delirium.

"A physician who was called in at once decided the cause of these symptoms to be poison, and investigating the supposed pickweed found it to be 'stramonium,' commonly known as Jamestown or 'jimson' weed. The usual antidotes were given and the sufferers were soon pronounced out of danger, although they have not fully recovered from their illness. Stramonium

grows abundantly on the lots around this city and is a powerful narcotic."

Can any of our readers tell what is "Pickweed" in New England? "Pickweed" in some parts of England is a large leaved Chenopodium, and which is eaten as spinach; but we suppose this is not the plant of "New England."

THE ORIGIN OF LIFE.—No one who sees any form of plant-life but wonders if it were always as it is now. The history of the earth shows that there has been a succession of forms in plant-life. Thousands of species have become extinct; and yet there is no reason to believe that the number of species on the earth's surface is any less than it was before these thousands of missing ones died. It may be accepted as an undoubted truth that plants were not all created at one time, but that there has been a continuous succession of created forms. Then we look at a plant and note that it is made up of living cells. The matter of which the cells are made is little more than senseless clay—it is but earthy matter and gases; but it becomes endowed with some power of selection and power of reproduction, and we call this plant-life. How did these selective and reproductive powers originate? How did "life" obtain this power over the senseless elements? How did life become a part of inorganic matter? And how, when it once got control, did all these various forms arise? These constitute what is known as questions of evolution and spontaneous generation. Notwithstanding the most careful studies the knowledge has not yet been reduced to scientific certainty. There is as yet no evidence that it would be safe to accept that any live creature, no matter how simple, has been produced from anything but had life before; and, notwithstanding the truth is manifest that there has been a succession of forms, is there any direct evidence that any great class of plants has been derived from others that are gone. They look alike, and we can trace resemblances, but we cannot see the truth so clearly that all must of necessity embrace it.

THE MOVEMENTS OF PLANTS.—Mr. Charles Darwin, the industrious worker among the mysteries of plant-life, is earnestly at work studying those plants which have peculiar motions, and will probably publish ere long. Though advancing in years he is comparatively strong and vigorous, and all will hope that he will have yet many more years in which to continue his useful labors.

DROUTH IN KANSAS.—Kansas seems to be fall-

ing back on its original drouthy reputation. A correspondent from Fort Larned writes that not a soaking rain has fallen between the Big Arkansas and the Rocky Mountains in twenty-two months, and that the Arkansas River is entirely dry from Hutchinson westward. Large numbers of settlers are leaving.

FREEZING OF THE SAP IN PLANTS.—In many discussions differences of opinions arise from failure of one side to grasp just what the other means. A good illustration of this is furnished by the following from the pen of Mr. Hovey to the *London Garden*: "Does the sap of trees freeze? This is a question which has been in dispute, and some of your contemporaries here do not believe in the theory. Under certain conditions, however, there can be no doubt the sap does freeze, and under others probably not. So far as sugar and starch freeze, just so far a tree will freeze; but the sap does freeze. I have had strong plants of Tea Roses frozen so hard as to split open the stem and the exuded sap to completely cover the wood with a coating of thin ice; and I cannot doubt that any tree before it has finished its winter hibernation will freeze when the cold is severe enough. There is a row of Lime trees on Boston Common which freeze so hard in our severe winters as to open the trunk for the distance of twenty feet or more from the ground fully one inch in diameter. I have put my hand in the crack. Yet these same trees in July would show no more signs of the opening than a mere vertical line of extravasated tissue. I have recently read in the papers that trees in the Jardin des Plantes were split from top to bottom by the frost."

Now there is scarcely a person of experience in cold countries but has seen trees split from the top to the bottom by frost. If such persons still believe that "sap does not freeze," it ought at once to suggest that they understand by that something different from what the one understands who calls attention to the split trees.

Now what is really meant is that the sap in living healthy cells does not freeze. If it did, every tree in Massachusetts would be as surely bound to split as the "row of Lime trees on Boston Common." A hundred bottles of water set on "Boston Common" would all split if one did. Frost knows no such favoritism as smiting one row of bottles and letting all the rest alone. The action of frost is always uniform under equal circumstances. But in a tree only a few outer rows of the woody circles contain living

cells. All the interior mass of wood in a tree is simply dead vegetable matter. There is no reason that we know why crude liquids taken into dead vegetable matter should not freeze, and, when it freezes, it will expand. Many persons have seen ice in small spaces found in the interior of trees cut in the winter season. This dead matter allows of some expansion, and the little moisture it contains may freeze without any perceptible effect on the whole body of the tree. But if the interior happens to be spongy, as is very likely to be the case with old Lime trees, and a great deal of water happened to be stored therein, we know of no reason why it should not freeze, and the trunk burst just as readily as it would in a bottle.

But all this is a very different question to that of the freezing of the sap in living cells, and for the cells to still continue thereafter to possess vital functions.

man will be increasingly studied as time wears away, and then the little spot where he worked so many hours will have a continued interest.

The country church-yard in which he desired to be buried, so that "the charms of wild nature might allure the birds to sing above his grave," is no longer a "country church," but closely pressed on all sides by brick and mortar, and is just in front of the steamship wharf, where passengers bid good by to America when on the start for Europe. He was a Scotchman, born at Paisley, July 6th, 1776, and landed at Newcastle, Delaware, on July 14th, 1794. From here he walked through dense woods to Philadelphia, and shot his first American bird, a red headed woodpecker, on the road. He first worked as a copper plate printer, but afterwards as a weaver at an old mill on the Pennypack Creek, near what is now known as Holmesburg, though a part of the great city of Philadelphia. He was a



WILSON'S SCHOOL HOUSE NEAR GRAY'S FERRY.

WILSON, THE ORNITHOLOGIST.—The little stone building used in connection with a wheelwright's shop, in which the celebrated Wilson taught school, on the west bank of the Schuylkill near Gray's Ferry bridge, Philadelphia, on a recent ride by, we see has been torn down.

Through the kindness of Dr. Elliott Coues, of Washington, we have been favored with a drawing of this classical spot, and have made the following cut therefrom. The history of this great

man of fine poetical temperament, though his poems do not take rank with the works of genius. He was the companion in ornithological work with the celebrated Wm. Bartram. Like many wonderful workers, he seldom had perfect health. He died of dysentery, on the 23d of August, 1813.

YUCCA MOTHS.—Mr. C. V. Riley has discovered a new yucca moth which bores the stem of the Yucca, instead of the fruit, as in the case of the *Pronuba yuccasella*. It very much resembles

the older known species, but may be distinguished at sight by from one to five spots, forming a broad W on the primaries. He calls it *Prodoxus decipiens*.

In the course of an article relating to it in the June number of the *American Entomologist* he remarks on a paper read before the *American Association* at Saratoga by the editor of this magazine, and says "Mr. Meehan drew from his facts the inference that because *Pronuba* did not pollenize *Yucca angustifolia*, therefore it did not pollenize *Yucca filamentosa*." We are very much surprised at this presentation of the case by Prof. Riley. No one knows better than the editor aforesaid that the *Pronuba* fertilizes the *Yucca filamentosa*; there is nothing whatever in the paper to warrant the charge that he drew any such inference, and how Mr. Riley derived that impression is incomprehensible.

The London *Gardener's Chronicle* did not get the same impression that Prof. Riley did, as the following paragraph shows: "A paper, by Mr. T. Meehan, on Fertilization of *Yucca*, which was read before the American Association for the advancement of science at Saratoga, and subsequently appeared in the 'North American Entomologist,' has recently been issued in form of a pamphlet. It contains a resume of the facts that have been observed in reference to this subject, and Mr. Meehan states, as the result of his investigation, that while *Yucca filamentosa* is undoubtedly fertilized by the *Yucca* moth (*Pronuba yuccasella*), *Yucca angustifolia* is not visited by that insect at all, and yet produces perfect seeds. It appears, however, necessary that it should be fertilized artificially or by insect aid."

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 15.

BY JACQUES.

Dr. Rosenthal counts, among twelve hundred useful plants, three hundred and sixty species which are fit for weaving, spinning, basket-making, cordage, &c., species which are distributed over the whole earth, and of which nearly every country has some that may be cultivated with profit.

Whenever we encounter decaying vegetable matter, we observe some form of fungi using up and appropriating the changed substances of a former condition to the generation of a new life,—a change of condition. The absorbing roots of these parasites grow into the tissues of the host in the most intimate manner, deriving from a disorganization of the substances the elements necessary to their own being.

Yes, there is a green rose. It is so ugly as to be worth nothing except as a curiosity. It is a sport from the *Rosa Indica*, originated in Charleston, S. C., and disseminated from Baltimore.

The Greeks were the great lovers of the rose. Bion's lament for Adonis, translated by Mrs. Browning, is unsurpassed, if perhaps, we except the following, also from her pen:

"If Zeus chose as a king of the flowers in his mirth,
We would call to the rose, and would royally crown it;
For the rose, ho! the rose, is the grace of the earth;
Is the light of the plants that are growing around it."

We may add here Mrs. Browning's inscription for a sun dial:

"See the shadow on the dial,
In the lot of every one,
Marks the passing of the trial,
Proves the presence of the sun."

Another inscription is good—"The Night Cometh."

Small orange trees, Chinese or Japanese, are beautiful ornaments for the table, in fact everywhere beautiful with their wealth of green and golden fruit.

The Grizzly Frontignan Grape is, notwithstanding its want of external beauty, so far as flavor goes, probably the best hothouse grape.

Mr. Bright, in his "Lancashire Garden," says the Crocus is less cared for than it deserves. Modern poets rarely mention it; but Homer, when he would make a carpet for the gods, it is Lotus, Hyacinth and Crocus, and Virgil's bees find their honey among Cassia and Lime blossoms, and iron-grey Hyacinths and glowing Crocus. Virgil speaks, too, of the scent of the Crocus, and Latin authors, when they wish to express a bright deep orange color, call it the color of the Crocus.

The most delicate odor is that from the short-lived bloom of the male or Wild Grape. No veranda is complete without its perfume.

Agriculture and horticulture "before that time, (forty years ago) may be said to be conducted under a Virgilian system, cultivators adhering more to blind custom than to reason."—*Burnet Landreth's Post Gardens*.

Cowley quaintly says: "The first three men were a gardener, a plowman, and a grazier, and if any man object that the second was a murderer. I desire he would consider that as soon as he was so he quitted our profession and turned builder"—*Ibid.*

Odors.—There can be no doubt that something is yet to be learned or re-learned with regard to scent. In dogs, &c., instinct is credited instead of smell. The ancients, it is thought, knew or studied something of this, and availed themselves of the discoveries, while we pay little attention to it. There is a well authenticated story of a man in Philadelphia some fifty years ago charming rats by carrying a scented article to the regions of their runs, when the animals flocked to him in great numbers. Does any one know what his secret was? Fenugreek and assafoetida have been tried in vain. That something must be done to get rid of these pests, who take everywhere a percentage of our products is palpable. The individual who can re-discover this lost secret has as good a thing as the best patent.

Kalm, the traveller, after whom is named our too much neglected and beautiful *Kalmias* was among the first to describe Niagara Falls. He gives the height by guess at 140 to 150 feet. The Marquis of Cavagnal had sounded it, and fixed the perpendicular fall at twenty-six fathoms.

EDITORIAL NOTES.

TREES OF FAIRMOUNT PARK.—The Fairmount Park Commission of Philadelphia have issued a catalogue of the trees and shrubs, not of the whole Park, but of those only which are to be found within a reasonable distance of the famous Horticultural Hall. This will be of immense service as showing the citizens of Philadelphia that they have in this Park an arboretum of an extent they little dreamed of, and one of which they may well be proud. It is doubtful whether a more complete collection of open-air trees and shrubs can be found anywhere else in the

United States; and when we know the extreme difficulty which the managers of large public grounds like Fairmount Park have in pleasing so many people, especially political people, an extra meed of praise is due the Fairmount Commission for what they have done in the interest of arboriculture and intelligent tree planting. We hope they may be induced to go still further in their good work, and get out some day a cheap, popular guide to the most notable trees, plants and shrubs on the grounds. People generally do not want to know everything as a botanist or enthusiastic cultivator would; but they like to make the acquaintance of those plants which have any especial bearing on their prosperity or pleasure. A work of this kind, accompanied by reference maps, so as to show where the plants might be easily found, would be a great boon to the people. The Commission itself could hardly issue such a work. It could not sell to some and give to others; and the demand for them from parties who could not be well refused would call for an edition that would be an enormous tax on the Park's resources. On the other hand, no person would publish a work of this kind cheap enough to be of popular service without some aid from the Commission. But the Commission could appropriate a couple of thousand dollars to some competent individual to prepare and publish such a work, on condition of a certain number of copies being furnished to the heads of Departments, and the exclusive privilege of selling the book to visitors to the Park.

PHYLLXERA IN EUROPE.—We have from Mons. André, Secretary of the Central Horticultural Society of France, 49 Rue Blanche, Paris, a circular letter in relation to the ridiculous action of the Berne Convention, by which horticultural products of every description are prohibited from being imported into many countries of the old world, through fear of introducing the Phylloxera. Of course this interferes terribly with the export trade of French nurserymen, and they have much interest in showing that there is no chance of introducing Phylloxera, except directly through grape plants, and nothing else. This is the object of the circular. The insect, it says, cannot subsist on any other vegetation than the vine, and therefore cannot be introduced but by the carriage of vines. We do not know that the two propositions necessarily follow each other. In nurseries where vines

are grown, other plants than vines may be exported with some chance galls of the Phylloxera on grape fibres in the soil. Yet it seems to be absurd to cripple all other industries because one may suffer. In our country we study rather how to conquer insect pests than to shiver at their approach. Indeed the very difficulties which insects bring make a richer reward to the energetic man who successfully labors to overcome them. Those Berne "High Joints" have made a mistake by their interdiction.

PROF. COPE AND THE ACADEMY OF NATURAL SCIENCES.—A friend who disapproves of the peculiar attitude of Professor Cope towards the Academy of Natural Sciences of Philadelphia, calls our attention to some points in our June paragraph, which he thinks does not do full justice to Prof. Cope, though he thinks they are not important enough to need correcting. But the GARDENER'S MONTHLY corrects even trifling errors, for small errors may lead to greater ones. Professor Cope stated that he lost his position as an officer of the Academy as a penalty for six months' absence on a scientific exploration in Oregon; and we said that Prof. Cope did not tell the whole story. Our friend suggests that this leaves the impression on the reader that Prof. Cope may have done some very bad thing. If so, this seems to be Prof. Cope's own fault. In his endeavor to place the Academy before the public in the light of obstructing scientific investigation, he made the loss of his seat in the council of the Academy appear as a penalty for absence merely, when it was really a penalty for absence in violation of rules provided for such absence. However, that not even the semblance of injustice may be done Prof. Cope, we may say, what Prof. Cope should have said himself, that on proper notice to the council a member may be away for any length of time; and it was the disregard of this rule, and not absence merely, that cost him his place.

The Jessup "fund" does not provide that the beneficiary should be only two years. The bequest was not conditioned in this way. We should have said the rules adopted for the management of the fund. Brevity is often at the expense of clearness.

When we referred to the immense amount of work done by the Academy on small means, we referred to five hundred paying members. At the moment of writing we had the whole list of members in mind. But a large number are

honorary,—correspondents. The actual number of annual contributors is only about two hundred—\$2,000. But this only makes it still more remarkable that so much should be done by this institution, and still more inexcusable the endeavor to make the public believe that it is doing very little useful work since Prof. Cope has had no voice in its management.

DUST IN FISHY WATER.—The *British Trade Journal*, of June 1, has a savage review of an American work. It complains of a "dangerous looseness" in the use of language, and finally concludes that this "looseness" is intentional, and queries: "Is his entire work to be classed with those (and there are many) written solely for the purpose of throwing dust into the air to obscure the light, that the ignorant and unlearned may accept some lesson which it is to the interests of the author to inculcate?" And presuming that his readers will answer this in the affirmative, he proceeds to say: "We cannot think this; such tactics are only worthy of the octopus or the skunk." Imagine a fish "throwing dust in the air," or a skunk "obscuring the light" by his dreadful odor; and all this in a criticism on the "dangerous looseness of American language!"

THE FIFTIETH YEAR OF AN EDITOR.—The *Philadelphia Press* gives the following account of an interesting occasion, which, from the world-wide renown of the distinguished Editor we transfer to our pages:

"The semi-centennial anniversary of the establishment of that well-known family newspaper, the *Germantown Telegraph*, was celebrated by a grand reception given by its founder and editor, Philip R. Freas, Esq., at his beautiful residence in Germantown, last Tuesday afternoon. From 3 o'clock until 8 p. m. there was a constant stream of callers, the visitors including a number of brother journalists of Philadelphia and Eastern Pennsylvania, and leading commercial, manufacturing and mercantile interests and the learned professions, including judges, lawyers, clergymen and physicians, and gentlemen retired from active business, all of whom joined in paying their respects and congratulations to the veteran editor who has passed through an editorial career of half a century, which has been one long and brilliant success. Among those present were ex-Governors Pollock and Hartranft; Judges Butler, Biddle, Pierce and Allison, of the Philadelphia Bench; Daniel Dougherty, Charles Magargee, Frederick Fraley, Dr. Charles Pancoast, Prof. Thomas Meehan, the noted pomologist, a dozen or more representatives of the old Wistar family of Germantown, and a hundred others. The editorial profession was repre-

sented by Col. John W. Forney, of the *Progress*; Clayton McMichael, of the *North American*; W. W. Harding, of the *Inquirer*; Joel Cook, of the *Ledger*; Col. Thomas Fitzgerald of the *Sun and Item*; Y. S. Walter of the Delaware County *Republican*; T. T. Worth, of the *Lebanon Courier*; Jacob Knabb, of the *Reading Journal and Times*; Morgan M. Wills, of the *Norristown Herald*; the Brothers Paschall, of the *Doylestown Intelligencer*; Wm. W. Coxe, of the *Frankford Herald*; with many others. Mr. Freas, though 72 years of age, is still in the harness, and is probably the oldest editor in the State. He was born in Montgomery county, in 1809, and at 16 years of age went to learn printing in the office of the *Norristown Herald*, then published by Daniel Sower, Jr. Upon attaining his 21st year he went to Germantown, where he established the *Village Telegraph*, with 429 original subscribers, of whom only seven still survive. The name of the paper was changed soon after its establishment to the *Germantown Telegraph*, which it still retains. It was the first family newspaper in the United States to introduce an agricultural department, which has always been one of its leading features. Major Freas makes it his boast that he has personally edited every number of his paper, though often confined to his bed by sickness, and has written the principal agricultural editorials, and those racy items for which the paper is noted. Latterly he has been a severe sufferer from rheumatism and is partially deaf, but all his mental faculties are in full vigor. His principal editorial assistant is his son, John A. Freas, a thoroughly trained journalist and most genial gentleman, who has been his father's 'best man' for the past twenty-three years. The Major has all his life been a model editor, a high-toned gentleman, a good citizen and a true and steady friend. He never accepted public position though several have been offered him. He has been named for Governor of the State on several occasions, and was offered the post of Commissioner of Agriculture by President Grant. He seems to have held that the post of honor, at least in the editorial profession, was the private station, and his successful life, evidenced by the honors paid to him on Tuesday by his personal friends and neighbors, proves that he was right. Except the infirmities of partial deafness and occasional rheumatic attacks, Mr. F. enjoys excellent health, and bids fair to continue his usefulness at the head of his paper for many years."

CORRESPONDENCE.—One of the commonest of letters is the one like this. "Several weeks ago I wrote to ask you whether toads eat bugs, and now I have the *Monthly* to hand, and no notice is taken of my communication." Sometimes it may be that "several days" was the expression instead of "several weeks." It should be borne in mind that it takes more than several days for the editor to prepare all the matter for a magazine like this. Our copy goes to the printer about the 5th of the month for our reading mat-

ter, and about the 20th for advertisements. It might by chance be that the editor could insert a paper or notice a query received so late as the 5th; but he would be more certain of having time to attend to it if it came a week or two before.

THE OLEANDER.—Mr. Shirley Hibberd says: "This handsome shrub is one of the most poisonous of its class, and therefore should be handled with care, for if the hand is cut when pruning it a dangerous wound may be the result. In Dr. Hogg's 'Vegetable Kingdom' occurs the following respecting it:—'It is one of the most beautiful window plants when covered with its large rose-like blossoms; but in these blossoms the weapon of death resides. During the Peninsular war a number of French soldiers who went out foraging near Madrid returned laden with the fruits of their search. One of the number, with the view of securing some wood to make skewers for the meat, cut a quantity of oleander boughs, and, having stripped them of the bark, used the wood in the meat. The result was that out of twelve who ate of the roast seven died, and the rest were dangerously ill. The poisonous principle is so subtle that its exhalations alone are sufficient to cause serious accident, and even death, to those who recline or sleep for any time under their influence.'"

It may be added to what Mr. Hibberd says, that the stories we have in all modern botanical works about Azalea and Rhododendron of modern botany yielding poisonous honey is purely fictitious. The Oleander was the Rhododendron of the ancients, and when the name was transferred to our present plants, the poisonous reputation went with the name.

INTRODUCTION OF THE MOSS ROSE.—For an answer to an "INQUIRER" we have referred to many old authorities, and the results of our search are that Parkinson in his "Paradisus," published in 1629, Rea in his "Flora" published in 1665, and Bauhin in his "Pinax" published in 1671, enumerate many roses, but the Moss is not among them. It was introduced or raised in Holland, probably at the close of the seventeenth century, for Dr. Martyn in his edition of Miller's "Gardener's Dictionary," says it is in Furber's catalogue in 1724. We have seen a copy dated 1727; it is entitled "Catalogue of English and Foreign Trees Collected, Increased, and Sold by Robert Furber at his Nursery over-against the Park-Gate at Kensington, near London."

Faulkner in his "History of Fulham," says that Mr. Rench was the first to introduce the Moss Rose into this country, the original plant of which is supposed to have been brought from Holland. Rench lived at South Field Farm, near Parson's Green, a farm possessed by his family for two centuries. He was buried in Fulham churchyard, where there is this inscription to his memory on a headstone—"Under this stone are deposited the remains of Nathaniel Rench, late of this parish, gardener, who departed this life Jan. 18th, 1783, aged 101 years." So he may have introduced the rose before 1724, for in that year he was forty-two years old.

The moss rose was first portrayed in the "Botanical Magazine, plate 69. It is described as the *Rosa muscosa*, or moss rose, and the plate is dated December, 1788. Mr. Curtis observes that, though Miller thought it a distinct species, Linnæus considered it only a variety of *Rosa centifolia*.—*Journal of Horticulture*.

THE HORTICULTURAL AUTHORITY.—A pleasant quarrel as it stands is going on between the *Rural New Yorker* and the *American Agriculturist*, as to where the great horticultural authority of the United States is located. Judging by what has appeared in print so far, this great literary light must be somewhere in the city of New York. Well, they are all pretty good fellows, and we would advise that they kiss and be friends.

THE LANGDON NURSERIES.—These well known nurseries, established twenty-seven years ago, at Mobile, Alabama, by Col. C. C. Langdon, have passed into the hands of his nephew, Daniel W. Langdon, who proposes to place them on a footing second to none in the South; and in this we are sure he will have the good wishes of all his brethren in the trade.

JEAN NUYTENS VERSCHAFFELT.—There are few Americans but know that famous bedding plant *Coleus Verschaffeltii*, which, after all the newer introductions, remains the prince of the tribe. The following from the *Gardener's Chronicle*, will have a great interest in this connection:

"The announcement of the death of this distinguished and amiable horticulturist will be received with very great regret by his many friends and acquaintances in England. M. Nuytens Verschaffelt was the adopted son of the late Jean Verschaffelt, of whose nursery, near Ghent, he was the manager, and to which he succeeded on the death of the proprietor. M. Nuytens Verschaffelt was deservedly a favorite for his genial straightforward character, while his nur-

sery was one of the most remarkable, even in that town of nurseries, Ghent. The English visitor, go when he might, was sure to meet with a most kindly reception on the part of the proprietor, while the collections of plants under his care were unusually interesting and important. M. Nuytens Verschaffelt died on the 30th ult., after a short but painful illness in the forty-fourth year of his age. M. Nuytens Verschaffelt was an active member of the Royal Agricultural and Botanical Society of Ghent, a Chevalier of the Order of Philip the Magnanimous; but his best title to remembrance will be his own character."

DR. J. T. ROTHROCK.—This distinguished botanist, and well-known lecturer at Fairmount Park, left on the 19th of June for a six months' study in Germany of some of the special branches of his favorite science.

DEATH OF ROBERT BUIST, SR.—As we are about to go to press we have the announcement of the death of Robert Buist, Sr., which occurred on Tuesday, July 13th. To his intimate friends his death was not unlooked for, as it was known he had been in feeble health for some months past. We have but space in this number for this brief announcement, but will have more to say of our deceased friend and eminent horticulturist in our next.

THE COMING OF CHRIST.—By James Caleb McIntosh.—At first we wondered why any one should send a book like this to a horticultural magazine for review; but on glancing through it we see what suggested it. According to Mr. McIntosh, "the last train," "the coming of Christ," "the lake of fire," "the end of the world," is to be during the winter of 1883 and 1884. It will therefore be of no use for nurserymen to set out any more young trees, cuttings or seeds; or to make any contracts for over two years ahead. It is kind of Mr. McIntosh to warn us of our fast approaching doom; but possibly fate may be induced to change her mind, as she has so often done in the past, before the fatal day comes; and we fancy most nurserymen will hold on in hope some good luck will yet postpone the awful time.

SCRAPS AND QUERIES.

GARDENING AND GARDENERS.—The following explains itself:—"I noticed in the May number of the *GARDENERS' MONTHLY* an editorial in which it stated that localities in which energetic florists

with a small capital could do well are plentiful, and I write this to you as an inquiry where such places are to be found, knowing that you, as editor, have a good opportunity to hear of such places. After being connected with several large florists for several years, I feel competent to start out for myself; but, as I have only a small capital at my command, I cannot afford to travel to find a suitable locality, which I consider is the first importance; so I thought that you might be willing to give me what information you can. Hoping that I am not too bold in asking such a favor, I remain, respectfully, ———."

[We have suppressed the correspondent's name and address, and will simply say that he writes from one of the largest cities in the United States, and, from the little we know of it, believe that, for such a person as we have described, he would want no better opportunity anywhere than just where he is. In that very place are "florists by the score, and "jobbers," "practical gardeners," "landscape gardeners" innumerable; but the men we describe are scarce there to the best of our knowledge and belief. The city from which he writes contains hundreds of thousands of inhabitants, but a friend assures us that there are not three landscape gardeners in the whole city that an intelligent gentleman would seek for companionship or advice if he wished to have assistance in the improvement of his grounds. We suspect such to be the case, for on looking at the list of subscribers to a horticultural paper from that city, we note how surprisingly few of the class already there subscribe to such works, and it shows their indifference to progress. In short, as to where to locate, our advice would be to choose some place where there are already a score or two of those dirty, ignorant "florists" and "jobbers," and where by the

contrast your own worth and intelligence could be readily seen. Where a community is too poor, or the numbers too few it would not be wise to make a start. It takes too long to educate such people. But the want for a better class is in those locations where there has already been taste enough to make ignoramuses succeed, and where the progressive people are yearning for something better.—Ed. G. M.]

NOTES AND QUERIES.—Mr. A. Pichard, Tallahassee, Florida, writes: I read in the GARDENERS' MONTHLY, which I received a few days ago, two articles with errors I think you will be willing to rectify. 1st. Page 183. *Communication by Jaques*. I don't know Mr. Jaques, but he should know that Algeria does not belong to the Turks, as he said in his article on Locusts. Before 1829, the Dey of Algiers was nearly independent of the Porte, and in 1829 and 1830 France, to avenge an insult to her ambassador by the Dey, bombarded Algiers and put this pirate sovereign out of his throne, and that is why the system of catching the locusts by trenches is employed. I saw from 1843 to 1851 the Arabs (and not the Turks), trying by shouts and loud noises round their barley fields to drive away the locusts, but often they were not successful.

2d. Page 184. In the article on Silk Worms. He thinks ridiculous what he read in the book called "Lang's Cyprus," that the women of Cyprus put the silk worms' eggs round their waists to hatch. Nothing is so true as that assertion; and it is customary not only in Cyprus, but in Switzerland, Piedmont, Italy and France. I have seen it done by nearly every woman engaged in silk culture every year. If Mr. Jaques desires I will give the reasons why, but this will be too long here.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

KANSAS STATE HORT. SOCIETY.

REV. L. J. TEMPLIN.

This society held its Tenth Semi-annual Meeting in Hutchinson, Kansas, during the first three

days of June. This was the first visit of this society to the Arkansas valley; and as the greater part of the members reside in the eastern part of the State, it was a new experience for them to find themselves so far out on the "Great American Desert." The news had gone out that our

country was parched and dried up with the drought, but, while it was true that the winter and the early spring had been without rain and strong winds had prevailed beyond anything in that line ever experienced before, yet, in spite of all this, our visitors found to their surprise the country clothed with luxuriant grass and bedecked with gay flowers. Fruit and forest trees have made a large growth. Copious rains have met all requirements in this direction. In order to understand the situation of this locality it should be remembered that nine years ago the very first settlers entered this part of the Arkansas valley. On the 13th of November, 1871, the first building was commenced in the city of Hutchinson. The country around was possessed by the buffalo, antelope and Indian, and the unbroken prairie stretched away in every direction in gentle undulations till it seemed to meet and kiss the skies. These facts being known to our visitors, it is not strange that they were surprised to find a city of 2,000 inhabitants, with large, well-finished stone and brick residences and business houses, and to see the country in all directions dotted with groves of trees, some of which measure from six to ten inches in diameter and from thirty to forty feet high, all grown within that time.

The meeting was held in the M. E. Church, which our ladies had decorated with plants and flowers in a magnificent manner. The whole rostrum was filled, behind, before, and on either side, so that when the President was seated, his face, radiant with intelligence and beaming with benevolence, looked like a profile set in a frame of brilliant flowers and vernal beauty. Reports of the fruit prospects by the members from the different parts of the State show that in the eastern and southern portions of the State the crop will be from medium to full, while in the central parts, owing to a late freeze, it is a failure. The address of President E. Gale, of Manhattan, was an able setting forth of the importance of increased intelligence on horticultural subjects among the rural population in its relation to the happiness of the people and the welfare of the nation. Able papers were read by a number of the members, among the most important were one on Landscape Gardening, by President Gale, one on the Apple, by Vice President G. G. Johnson, of Lawrence, and one on Botany, by Prof. J. W. Robson, of Dickinson County. Able addresses were delivered on peach culture by the young, energetic, and intelligent correspon-

dent of the GARDENERS' MONTHLY, H. E. Van Deman, of Allen County; on Floriculture by Mr. Johnson and Prof. Robson, and on various other subjects by other members.

Discussions were had on the Apple, Peach, Grape, Forest Trees, Vegetables, Gardens, Ornithology, Entomology, Irrigation and Small Fruits. Secretary G. C. Brackett, of Lawrence, exhibited six varieties of strawberries, the best of forty varieties tested the past year. These were sampled by all present, and pronounced good, with the first two named at the head of the list for both size and flavor. These six varieties were the Cumberland Triumph, Crescent Seedling, Charles Downing, Captain Jack, Wilson and Austin.

For earnestness, energy, intelligence, perseverance and "snap," this society will compare favorably with any similar organization I have ever known. The annual report of this society for 1879, just issued, is an 8vo volume of 460 pages, and is far superior to any similar publication in the country.

Some of the members claimed it to be the most interesting and profitable semi-annual session ever held by the society. We believe the influence for good on our people in this locality will be both lasting and powerful.

EDITORIAL NOTES.

THE NURSERYMEN'S ASSOCIATION.—The Chicago meeting was very successful. Over a hundred of the best firms were represented. T. S. Hubbard presided, and responded in a good address to the welcome of Chicago through Edgar Sanders. Tree peddlers came in for special attention. General diffusion of knowledge was noted as the only practicable remedy. In regard to making better terms with railroads for transporting nursery products, nothing seems to have been done. The reports of the quantity of stock on hand were pretty much as usual, no one reporting that there was any special overstock. Mr. Albaugh, of Tadmire, Ohio, was elected President for next year, and Dayton, Ohio, as the place of meeting. Among the cultural papers, the Phylloxera, shade for fruit trees, propagating, stocks and scions, and similar topics.

The meeting was well received by the Chicago brethren, and rides round the beautiful parks and other hospitalities generously provided.

CAMDEN MICROSCOPICAL SOCIETY.—The last meeting of the Society may be called visitors' night, having been devoted entirely to the instruction and entertainment of the members and their friends.

Isaac C. Martindale gave an interesting talk upon "the germination and growth of Parasitic Plants." The gentleman spoke entirely extempore, and from the ease and fluency with which he presented the points of the subject, it was evident that he was master of this part of the science of Botany.

He first drew a distinction between parasitic and epiphytic plants, in that the former feeds upon and the latter lives or rests only, without feeding upon the pieces of the host. Parasitic plants may also be defined or divided into those which have green leaves and those devoid of them, those having them assimilate their own food, while the leafless feed on that prepared by the host plant. They are further distinguished by those which germinate in the earth, and afterwards become parasitic. Those which germinate as parasitic and afterwards pursue an independent existence, and those which germinate, live and die attached to another.

The Common Dodder, *Cuscuta Americana*, conspicuous in our swamps in the summer, appearing like a copper-colored wire, is an illustration of the first class. Its seeds germinate in the earth, the embryo of which typifies the future growth, being of the form of a spiral.

After the seedling has grown out, it finds some plant to which it attaches itself by little projections or papillæ, which push out of the side of the slender stem and penetrate the woody tissues or fibres of the plant it is destined to feed upon; then the connection with the earth dies and thereafter all nourishment is drawn from the host through the little root-like suckers. The history of the growth of this plant was traced through the various stages, and an illustration given that while the Dodder was a parasite it might succor or sustain another parasite on itself, a fungus which the speaker had discovered a few years since near Mt. Ephraim, and which is now known as *Protomyces Martindalei*, so named by Prof. C. H. Beck, of Albany, an authority on this class of plants.

The Flax Dodder is another species of similar habit, formerly destructive in the flax fields of our forefathers, who grew that commodity for "homespun." Several other species were described, and about one-tenth of those known are

said to be inhabitants of the United States. Of the class that germinate on the roots of other plants, and may perfect their growth afterwards independently, a large number of instances were given, admirably illustrated by dried specimens from the large herbarium of the lecturer, some natives of this country, others from Europe, Asia and Africa.

A very handsome specimen of the so-called snow plant of the Western Sierras was exhibited and its habits of growth, etc., described.

Schweinitzia adorata a rare plant (parasitic) was shown as perpetuating the name of Van Schweinitz who spent a large part of his life in the study of the lower forms of vegetable life.

The large order of *Orobanchæ* was illustrated by numerous species, and detailed descriptions of the life history of the curious plants were given, and many interesting facts related.

The closing of the lecture was a beautiful diagnosis of the intimate relation that the comprehensive mind of man may see existing in all things, of the mutual relations of one being to another in order to obtain the highest measure of life, the especial gift of God, and of how the Microscope can be made to serve a great purpose, and the study of Natural History open the way for an upright walking in the truth. Yet, so far as these investigations and studies have gone, by the aid of the highest Microscopic powers we are able to bring to bear upon the germs of existence, some progress and development has already preceded our sight, a gap there, that can only be spanned by a faith in an over-seeing power, which fashions for the use of his creatures all things that he wills.

The wrapt attention paid to the lecture must have been gratifying to the speaker, as an assurance that the labor of many tedious hours, the fatigues and disappointments of many a weary search in collecting these facts and specimens, afforded so much instruction to those seekers after knowledge, whose eager faces showed their appreciation.

At its conclusion, remarks upon it were made by several members, and the attention of the audience called to those interesting parasitic plants or microfungi, Cluster Cups, of which large numbers and different species were shown and explained by the members under the microscope.

Their meetings increase in interest, and we predict a large attendance on next visitors' night.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

In most of the countries of Europe, summer gardening is the most attractive, and most that is done there is with that view. With us the spring and autumn are more enjoyable, and if American gardening is ever to have a distinctive feature of its own, it will be from efforts specially directed to one or both of these. Our summers are usually hot and dry, and people are either "away," or very much indisposed for out-door enjoyment, except such as may be found in shady woods, or on some heights where the cool breezes blow. At any rate we shall not go wrong by doing our best for good effects with spring flowers, and it is time to think about these things now. There is scarcely anything more beautiful in spring than a bed of Hyacinths and Tulips well intermixed. The Hyacinths go out of flower just as the Tulips come in. In the spring Gladiolus and Tuberoses can be placed between these; or if desirable some flowering bedding plants, and in this way the gaiety and interest can be preserved from spring to fall. Crown Imperials are capital things for the centre of small beds, and the regular bedding plants can go around them. Narcissuses keep their foliage too long after flowering, as does the Snowdrop. These can hardly be made available where regular bed-

ding is desirable for summer. They are best in odd patches by themselves. Crocus does well anywhere. It may even be set in the grass about the lawn, as it is generally over before the first mowing takes place. But it would not be admitted into our best kept lawns. The vast tribe of lilies come in rather late for spring gardening, but few will care to be without them. Besides these there are many little items which are noted in almost all bulb catalogues, from which many interesting spring blooms can be had. No one will go amiss in looking well to this class of plants. The best time to plant is from now to frost. Mice and vermin are very liable to attack these roots. Poisoning is the best remedy.

Unless very well acquainted with the varieties of Hyacinths and other bulbs, it is best to leave the selection of the kinds to the dealer. The best manure for all kinds of bulbs is rotten cow manure. Half rotten stable manure or rank matter of any kind, is not good. Very rich garden soil, without manure, is better than to have this matter fresh.

Of Tulips there are many classes. The single dwarf varieties are very early; the double ones of the same class come next. The Parrot Tulips, so called from the singular warty edges of the petals, are the next earliest, and then the Tulip, so well known for its large, full cups of all colors.

The next most popular bulb is the *Narcissus*, of which there are only white and yellow varieties—but these so varied in shade and shape as to afford a dozen or more of single and double kinds.

The *Crocus* is another popular bulb, as there are so many shades of color, white, yellow, blue, and the many shades between, they make gorgeous masses in the spring flower garden. They have a beautiful effect when placed in clumps on the lawn, where the flowers come through and expand before the grass begins to grow. The sloping sides of a terrace are often made to blaze with beauty in this way; and besides, the extra warmth of these terrace banks, when full to the sun, make the roots flower much earlier than they will in the level garden ground. Crown Imperials have been much improved of late years, and there are now some dozen or more of varieties. But the old Red and the old Yellow are good things to have at any rate.

The *Snowdrop* is, perhaps, the earliest to flower of all bulbs, being, in Philadelphia, often out by the 1st of March. There are the double and the single, both desirable—but the last we think the prettiest. They should be planted where they are to remain several years, as the after-removal, as with other bulbs, is not favorable to an abundant bloom.

Persian Iris, *Ranunculus*, and *Anemone*, are very popular and beautiful bulbs in Europe, but do not reach anything like the same perfection here.

Among the miscellaneous hardy bulbs, which flower early and are very desirable, are Japan Lilies of all varieties, and all kinds of Lilies, although they are scarcely to be ranked with spring flowers, many of them, indeed, not opening till July.

Then there is the *Allium moly*, two kinds, yellow and white; *Camassia esculenta*, a plant of the Squill family, and very pretty; *Erythroniums*, white and yellow; *Leucojum aestivum*, and *L. vernum* with white flowers; various *Ornithogalums*; the American *Pancratiums*; *Scillas* of various kinds, especially *S. Sibirica*; *Zephyranthus Atamasco*, and we may add the various *Poenias*. These are all hardy, and really good things.

As a rule the Lily is planted in too dry or too hot a place, and this is very much against its success.

October and November in most States of the Union are first-class planting months. We must

however, call attention to the great value of pruning trees and shrubs at transplanting, as well as hammering the earth firmly about the roots, in order to have the best of success. In some cases pruning is an essential. It is extremely rare that a Holly unpruned survives transplanting in our climate, while when pruned they always live, even with comparatively bad treatment.

COMMUNICATIONS.

AMERICAN ROSES.

BY H. B. ELLWANGER.

(A paper read before the W. N. Y. Horticultural Society at Rochester, Jan. 29, 1880.)

A monograph of roses, which are of American origin, has, I believe, never before been attempted; not, perhaps, because there has been a want of interest in the subject, but because of the inherent difficulty in procuring reliable data. To discover the parentage of the various varieties, and the names of the raisers, has been an arduous undertaking, and I regret not being able to present a complete record; this, however, was hardly to be expected. Two classes have had their origin in America, the Prairie, and Noisette Roses. These two classes give the most valuable climbers which we have, though our trans-Atlantic brethren do not take very kindly to the former. Besides these two classes, many varieties in other groups have had their origin in this country, several of which are leading sorts in all rose catalogues of prominence, but our chief contributions must be considered the Prairie and Noisette varieties, as introducing new and very important groups.

The Prairie Rose (*Rosa rubifolia*), is indigenous to this country. Seeds of this were sown about 1836, by Messrs Samuel and John Feast, of Baltimore. The seedlings from this sowing were then fertilized by some of the best roses grown at the time, and from this lot came Baltimore Belle and Queen of Prairies. The Messrs. Feast, together with Joshua Pierce, of Washington, have raised nearly all the varieties of this class possessing any merit. Though inferior in quality to the Tea-Noisettes, their hardiness and vigorous habits, make them of great value when the more beautiful Noisettes are too tender to be made useful. As an indication of their popularity we may state, that next to the Remontant Roses, more plants are annually sold of the Prairie than of any other class. Baltimore Belle when in

blossom, gives a display of which any one may be proud, whether the flowers are viewed individually, or in the mass. It is much to be regretted, that no further development of this really valuable class has been made. There is no reason why we should not succeed in obtaining a new class of hardy climbers, which shall, in a great measure, combine the good qualities of the Hybrid Perpetual, Noisette and Prairie Roses. By patient study and care, this may be done; who is there that will do it? To accomplish this desired result, the Prairie varieties might be made the seed parents, and fertilized by different varieties of Remontant and Noisette Roses known to be good seed bearers, and that are otherwise desirable sorts.

A few years ago, Mr. Henry Bennett, of Salisbury, England, commenced a series of experiments in the production of new roses by artificial fecundation; selecting a number of sorts among the Tea and Hybrid Perpetual groups, and seeking, so far as possible, to combine and blend the several good qualities possessed by each. He has in this way, founded a new, and what will certainly prove to be a very valuable class of roses—the Hybrid Teas. Indeed it is my opinion, that this group of Hybrid Teas, will, by the improvements which are certain to be made, soon constitute our most popular class of roses. What has been accomplished by Mr. Bennett, is very good evidence, to my mind, of what can be done by us, in producing a class of hardy Remontant Climbing Roses.

In the list of American roses, there are several varieties with which I am unacquainted, and the descriptions therefore, are those of the raisers, or, where in a few instances it was not possible to obtain these, they are described by reliable parties acquainted with the varieties. Whenever possible, both the name of the raiser, and the year when the variety was first sent out, are given.

PRAIRIE ROSES. (*Rosa rubifolia*.)

These possess great vigor of growth, bloom late in the season in large clusters, and though the individual flowers lack many of the desirable features found in other classes, none are more effective in the mass.

Anna Maria (Raised by Samuel Feast, of Baltimore, Md., 1843). Color, blush or pale pink, full flowers; has very few thorns.

Anna Eliza (Williams). Dark purplish red.

Baltimore Belle (Samuel J. Feast, 1843). White, with blush centre; of good full form. This seems to have some Noisette blood which makes it a little tender in very severe

winters; it is, however, the most beautiful and sought after of the class.

Eva Corinne. Pale blush.

Gem of the Prairies (Raised by Adolphus Burgess, of East New York, 1865). A hybrid between the Queen of the Prairies and Mme. Laffay (Remontant). Rosy crimson, occasionally blotched with white.

Jane. Rosy blush, double and finely shaped.

King of the Prairies (Samuel Feast, 1843). Pale rose.

Gracilis (W. Prince, 1845). Rose, varying in hue.

Linnean Hill of Beauty. White or pale blush.

Madame Caradori Allan (S. Feast, 1843). Bright pink; semi-double.

Milledgeville. Pale blush, tinged with flesh.

Miss Gunnell. Pale pink.

Mrs. Hovey (Joshua Pierce, of Washington). Pale blush flowers, becoming almost white; resembles Baltimore Belle, but of rather hardier habit.

Mrs. Pierce (J. Pierce, 1850). Blush.

Pallida (S. Feast, 1843). Blush, much resembling Superba.

Perpetual Pink (S. Feast, 1843). Rosy purple.

Pride of Washington. Deep rose; small flowers, but distinct and double.

Queen of the Prairies (S. Feast, 1843). Bright rosy red, frequently with white stripe, foliage large and quite deeply serrated.

Ranunculiflora. Small, blush flowers.

Superba (S. Feast, 1843). Pale rose, changing to blush.

Triumphant (J. Pierce, 1850). Deep rose, double and compact.

There have been a few other varieties in commerce, but the above constitute those which have most commonly been grown, and are the only ones now propagated. The most valuable are, Anna Maria, Baltimore Belle, Gem of Prairies, Mrs. Hovey, Queen of Prairies and Triumphant.

NOISETTE ROSES, OR CHAMPNEY ROSES.

Rosa Noisettiana, or *Rosa Champneyana*, or *Rosa Moschata Hybrida*.

The Noisette Rose is a product of America, and obtains its name from Philippe Noisette, a florist of Charleston, South Carolina.

John Champney, of Charleston, from the seed of the White Musk Rose, fertilized by the Blush China, raised a variety which was called Champney's Pink Cluster. A few years after this, Philippe Noisette, from the seed of Champney's Pink Cluster, raised the Blush Noisette, and this he sent to his brother, Louis Noisette, of Paris, under the name of Noisette Rose. The true name, therefore, for this class, should be the Champney, but the change cannot now be made.

This group is naturally of vigorous growth, nearly hardy, and produces large clusters of flowers; but, through hybridization with the Tea section, the original characteristics have, in part, disappeared. The varieties now generally grown, are less hardy and have nearly lost the clustering tendency; but the flowers have much more substance, and are far more beautiful.

America (Professor C. G. Page, of Washington, D. C.; sent out by Thomas G. Ward, 1859). Growth vigorous; flowers large, creamy yellow, with a salmon tinge; a cross from Solfaterre and Safrano.

Beauty of Greenmount (James Pentland, of Baltimore, 1854). Rosy red.

Champney's Pink Cluster (John Champney). Very vigorous; flowers pink, semi-double.

Cinderella (C. G. Page, 1859). Rosy crimson.

Dr. Kane (Pentland, 1856). Growth free; flowers large, sulphur yellow; a shy bloomer on young plants: in the South it is highly esteemed.

Isabella Gray (Andrew Gray, of Charleston, South Carolina, 1854). Growth free; flowers large, golden yellow, full and fragrant; on young plants it does not flower fully, and often opens badly; a seedling from Cloth of Gold.

Nasalina (A. Cook, 1872). "Of vigorous growth; flowers pink, of flat form, very fragrant; a seedling from Desprez."

Tuseneltea (Anthony Cook of Baltimore, 1860). "Pale yellow; a seedling from Solfaterre."

Woodland Marguerite (J. Pentland, 1859). Growth vigorous; flowers pure white, freely produced.

There have been other American varieties of this class, but I am only certain of those above named. We hope our Southern Rosarians will introduce some new types and colors of Noisettes; almost the only ones of value we now have, are shades of yellow and white. In the South many Noisettes seed freely, and great improvements might easily be made, by resorting to manual fecundation. I see nothing to prevent the obtaining of the same shades among the Noisettes that we have among the Hybrid Perpetuals.

BOURBON ROSES (*Rosa Bourboniana*).

Charles Getz (A. Cook, 1871). "A Hybrid; growth very vigorous, making a good climber; quite hardy, color deep pink; very fragrant."

George Peabody (J. Pentland, 1857). Growth moderate, color purplish crimson. A probable seedling from Paul Joseph.

Oplitz (A. Cook, 1871). "A Hybrid. Growth moderate; color fiery red. A seedling from Gloirie des Rosamans."

Renno (A. Cook, 1868). Named after General Renno, of Philadelphia. Color deep pink.

Setina (Peter Henderson, 1859). Identical with Hermosa from which it is a sport, except that it is of stronger growth.

BENGAL ROSE (*Rosa Indica*).

James Sprunt (Rev. James M. Sprunt, 1856). Sent out by Peter Henderson, 1870. Like Cramoisie-Superieure, but of vigorous growth, making an excellent climbing sort.

HYBRID PERPETUAL ROSES (*Rosa Damascena Hybrida*).

Belle Americaine (Daniel Boll, of New York). Deep pink color, flowers small, but of fine form.

Mme. Boll (Daniel Boll). Sent out by Mons. Boyeau, of Angers, France, in 1859. Growth vigorous; foliage very large and handsome, of a pale green color; spines numerous. Flowers large or very large; form flat; color carmine rose; a free autumnal bloomer and very hardy; perhaps the most hardy in the class. One of the most superb roses for the garden.

Mme. Trudeau (Daniel Boll, 1850). Deep rose, double and well formed.

Charles Cook (A. Cook, 1871). Scarlet crimson.

Contina (A. Cook, 1871). Rosy pink.

Il Defense (A. Cook, 1871). Shining red, Camellia form, thornless.

La Brillante (A. Cook, 1872). Brilliant red; raised from Napoleon III.

Rosalina (A. Cook, 1871). Rose color.

Souvenir de President Lincoln (A. Cook, 1869). Dark velvety crimson.

These are the only varieties I can name of American origin, though others have been raised. Mr. Boll, now deceased, who was by birth a Swiss, produced a number of seedling Hybrid Perpetuals of merit; several of these were sold to parties in France, who sent them out as their own. Among these was Mme. Boll. It would be interesting to know, whether any among them besides Mme. Boll, are now famous.

TEA ROSES (*Rosa Indica Odorata*).

American Banner (George Cartwright, of Dedham, Mass., 1877). Sent out by Peter Henderson in 1878. A sport from Bon Silene. Growth moderate; foliage quite small and leathery; flowers carmine, striped with white; the form and fragrance of the flowers seem the same as in the old variety, but in habit they are entirely distinct.

It will perhaps be popular as a novelty, but it has no intrinsic merit to make it valuable, and we cannot commend it.

Caroline Cook (Anthony Cook, 1871). Color pink. A seedling from Safrano.

Cornelia Cook (A. Cook, 1855). Growth moderate, flowers white tinged with flesh, large and very full; not a free bloomer, and often does not open well, but a superb rose when well grown. A seedling from Devonensis.

Desantres (A. Cook, 1855). "Color flesh, very distinct from any other Tea Rose; a better bloomer than Cornelia Cook, and a good winter flower. Raised from Devonensis."

General Washington (C. G. Page, 1860). Rosy crimson.

Isabella Sprunt (Rev. James M. Sprunt, 1855). Sent out by Isaac Buchanan, of New York, in 1865. Sulphur yellow, a sport from Safrano, which variety it very closely resembles in all, save color of the flower.

Paradine (A. Cook, 1858). Canary yellow, small flowers. A seedling from Le Pactole.

President (sent out by Mr. W. Paul, of London, in 1860). Growth moderate. Color, rose with salmon shade; flowers large, moderately full, much resembling Adam. Mr. Paul, the disseminator, states that this is an American variety, but I am unable to learn by whom it was originated.

Among the many letters I received in response to inquiries, is one from the Rev. James M. Sprunt, D.D., and is of such interest that I insert it as it came to me:

KENANSVILLE, N. C., Jan. 1, 1880.

DEAR SIR:—I am just in receipt of yours of the 29th ultimo, asking for some particulars relative to the origin of the roses James and Isabella Sprunt.

In the spring of 1855 I removed from my former residence in this town to the premises on which I now reside. Among the plants which I carried with me was a very large and handsome Safrano rose. It had been trained to a single stem, fully two inches in diameter, and forming a symmetrical head about four feet from the ground. I pruned it well back, but the early summer being dry, the top died. The plant, however, put forth six or eight strong shoots from the collar at the surface of the soil, and one of

these attracted my attention from its dissimilarity to the others in the color of the stem and foliage. I observed it carefully until it bloomed, when it proved to be a fine yellow, all the other shoots retaining the normal color of the Safrano. From this sport, which was named "Isabella Sprunt," from one of my daughters, I sent cutting to Mr. Isaac Buchanan, a florist, of New York, in 1860, and it was sent out by him some two or three years afterwards, I think before the close of the war, though I heard nothing concerning it till 1865. (By referring to old files of the *Country Gentleman*, we find Mr. Buchanan first offered this for sale in 1865).

I may add that in the winter of 1856 I took up the old plant, and sawed the stock into five or six pieces, being careful to get a good share of the root to the yellow shoot; that plant still lives and is quite constant, though it has had, perhaps, two or three Safrano flowers, certainly one; and besides, about three years ago there was a fully-developed bud and flower, exactly one-half of which was like Safrano, and the other half like Isabella Sprunt. I tried to fix this new sport, but it produced afterwards only yellow flowers.

About the same time (1855) I divided some strong plants of Agrippina and planted them at my new home. Two or three years later I observed a single shoot from one of these plants growing vigorously without flowers or branches, and as I observed it from time to time, it continued until it measured over fifteen feet before it showed any buds, the rest of the plant retaining its normal characteristics. This shoot branched out very freely the following year, and cuttings retained the same habit invariably. I came to the conclusion that this was not a sport, but a chance seedling, as the flowers were so very unlike the parent, and the roots were so matted together that I could not determine whether it proceeded from the old root or not, without taking up the whole plant, which I was unwilling to do. But the wonderful thing is that after the rest of the plant had for years retained its original habit and flowers, gradually it began to change, until the whole is now like the James Sprunt in growth and flower, and no part of the Agrippina remains. I have written you this statement that you may judge for yourself, my own opinion having changed more than once.

Yours very respectfully,

JAMES M. SPRUNT.

Safrano is, therefore, without doubt, a sport resulting from one of these strange freaks in which Nature occasionally indulges. About James Sprunt, there is less certainty, but I consider it also to be a sport; it is like Agrippina, only with more substance of flower, and greater vigor of growth.

The theory of evolution would point towards this, as an example of how Nature tends towards progression and improvement as well as towards variation.

In conclusion I would say a few words respecting American roses of the future. Attention is sometimes directed to the contributions we have made to the list of new and valuable fruits.

Among apples, we lay claim to such standard sorts as Jefferis, Sherwood's Favorite, Baldwin, Jonathan, King, Ladies' Sweet, Mother, Newtown Pippin, Northern Spy, Peck's Pleasant, Rhode Island Greening, Golden Russett, Wagner, and many others.

Among pears, we have Clapp's Favorite, Tyson,

Howell, Seckel, Sheldon, Dana's Hovey, Jones Dr. Reeder, Frederick Clapp, etc.

Among cherries, we originated American Amber, Coe's Transparent, Delicate, Downer's Late Red, Gov. Wood, Kirtland's Mary, Robert's Red Heart, Sparhawk's Honey.

Among plums, we have Bleecker's Gage, Deniston's Superb, Duane's Purple, Imperial Gage, Jefferson, Lombard, McLaughlin, Peters' Yellow Gage, St. Lawrence, Washington and Yellow Gage.

In peaches we produced the following leading varieties:

Alexander, Amsden, Cooledge's Favorite, Crawford's Early, Crawford's Late, Foster, Haines' Early, Hale's Early, Morris White, Old Mixon Freestone, Surpasse Melocoton, Waterloo, etc.

It is needless to mention grapes and strawberries, since, with the exception of three or four sorts of strawberries, only American varieties are, in this country, at all grown.

We have probably produced as many of the leading and best varieties of fruits as all other countries combined. Generally speaking, this has not been due to any particular skill which has been brought to bear, but rather to the great range and variation in climate, and to quick observation in discerning and utilizing the variations which nature, under favorable circumstances, is ever producing.

If we assist nature in her strivings for variation, and turn her laws to our advantage, how much more interesting and satisfactory in every way, would be the result!

For example, in the dissemination of a new pear; a graphic and attractive description, and the reputation of the disseminator for sending out novelties of value only, will procure, at least a limited sale for the new variety offered. But, if it can be said that the new pear is a known seedling from Sheldon, or from Beurre Superfin crossed by Urbaniste, how much more confidence would be placed in the new kind proffered! We know the characteristics of Sheldon, of Beurre Superfin and of Urbaniste, and we can have some idea of what their progeny will be.

Much the same laws operate in the animal and vegetable kingdoms. No experienced breeder of cattle or horses would think for a moment of depending upon chance results; he knows that by crossing this strain with that, he will obtain what he desires, and will be able in a great measure to know what the produce will be.

By this knowledge we keep and improve our breeds of Jersey and Holstein cattle, our Hambletonian and Mambrino horses and secure variations in them, such as we desire. Why then, do we not more generally pursue the same course, in raising new fruits and flowers?

In the production of new roses, instead of having exhausted the field, as a few writers have incautiously observed, we have only just entered it; the future possibilities open to the raiser of new roses, is only dawning upon us. Lyons, France, is the head centre, from whence most of our cherished roses have come. Mons. Jean Sisley, an eminent horticultural authority, says that none of their Rosarians practice artificial fertilization, they simply gather and sow the seed, as they would sow a field with carrots, and for the most part not even keeping the varieties separate. Nature, unaided, is left to do all, and everything is left to chance.

By adopting the same practice we might just as well produce many varieties of value, and I hope there will be found among us many to thus take their chance in the production of new sorts. But why leave it all to chance?

What more pleasing occupation can there be, than, by hybridizing artificially, to engage in the art of producing new varieties, aye, and not only new varieties, but new types of roses now unknown.

"This is an art which does mend nature, change it rather; but the art itself is nature."

EDITORIAL NOTES.

THE TRUMPET VINES.—Confusion exists in nurseries regarding the names of many things; and it is well to take every occasion to get right. Recently we had our attention called to three trumpet vines, as *Bignonia radicans*, *B. grandiflora*, and *B. grandiflora major*; but the one called *B. grandiflora major* was evidently a form of the American, with larger and darker flowers. Loudon describes *B. radicans major* as having larger and lighter flowers. We suppose this cannot be that, and propose for it the name of Crimson Virginian Trumpet Vine. There is not sufficient botanical distinction to make it worth while to load it down with the Latin *Bignonia*, or properly *Tecoma radicans sanguinea*. There is a good distinction between the Japan (*T. grandiflora*) and the American not noted in

books, in the calyx. That of the Japan is green and thin, that of the American is brown and thick as leather. We fancy there is no such thing as *Tecoma grandiflora* "major." At least we have never seen but one form of the Japan species.

SPIRÆA PALMATA.—This Japan species has flowered this year in American gardens, and proves to be an excellent border plant. It flowers in Philadelphia in June, and earlier than the American *Spiræa lobata*, which it resembles in color and general appearance. It is much dwarfer than that popular kind.

AMERICAN TREES IN FRENCH GARDENS.—The *Bulletin de la Société Linnéenne de Normandie*, 1876-77, just issued, has a biographical sketch of Victor Leroy, botanical-horticulturist, of Lisieux, from which some extremely interesting facts in reference to American plants may be obtained. He was an intimate friend of Michaux, and received many of the seeds and plants which he collected,—sharing with Cels and a few others whatever the great American traveler found. Victor Leroy died 7th of July, 1842; so the biography—by Amédée Tissot—has been a long time in appearing. Leroy, it appears, with a younger brother sailed for San Domingo "in 1775 or 1778, being then twenty or twenty-three years old." Among the many products of France which they took to San Domingo is enumerated plants of the "Bon Chretien" (Bartlett) Pear. They came to own a few years later an extremely valuable sugar plantation on one of the best parts of the island. In 1791 the revolution on the island met them, and the estate of the Leroy was ruined. They escaped as by a miracle. Victor Leroy took refuge in Boston, and became a professor of languages. Here, about 1803, he became acquainted with Michaux, with whom he corresponded to the day of his death. A few years later Leroy retired to Baltimore, devoted entirely to botany and horticulture, and making occasional trips to the forests of Tennessee, Erie, Ontario, the Alleghanies and elsewhere, sending the seeds he collected to Paris, London, and other places in Europe. He made voyages with plants to France in 1811, 1817, 1818, settling finally in France in 1831.

Among the remarkable statements is the one that the *Æsculus rubicunda*, the red flowering horse-chestnut, was one of his introductions. The statement of the *Bon Jardinier* is quoted that the plant was raised from a seed given to

the Garden of Plants in 1812 by Michaux, with the remark that "this is true," but it was given to Michaux by Leroy, who brought it to Paris in his voyage of 1811. We must regard its origin as still obscure, for we cannot think it referable even as a variety to any known American species. Among other things, *Styrax lævigata*, *Jeffersonia diphylla*, *Pyrus coronaria*, *Epigæa repens*, the Isabella grape "from Baltimore in 1838," many oaks, seem to have been the introductions of Leroy to France. The Osage orange was introduced by him through seeds given to him by Captain Lewis, through an "American botanist, McArran." McArran's contemporary, McMahon, has hitherto, we believe, had the sole credit of distributing this original seed. "Leroy cultivated the seeds in the vicinity of Baltimore in 1815, and after being satisfied that it was a new species he dedicated it to his botanical friend Maclure." Fruit was sent in 1820. In 1823 three seeds grew in Paris, and in 1824 some grew in England. Thus credit is claimed for France one year before England in the introduction of the Osage orange. We find also from this sketch that Michaux had the double Chinese *Wistaria* in 1837, from a specimen given him by Leroy on his return to France in 1831,—so that this plant probably originated in the hands of some florist on American soil. By the aid of Victor Leroy, Michaux had an American forest planted in the Bois de Boulogne. The biographer says in 1873, when he commenced to make his notes, he visited the forest, and found it nearly destroyed through the German invasion of Paris. In the park of the Chateau d'Harcourt, however, a young plantation has been made.

SCRAPS AND QUERIES.

LANDSCAPE GARDENING.—M. P. D., Zanesville, Ohio, writes:—"As we subscribe to your valuable GARDENER'S MONTHLY AND HORTICULTURIST through our news-dealer, we thought we would address you about some books advertised in the MONTHLY.

Do you consider F. R. Elliott's Hand-book of Practical Landscape Gardening complete and a reliable work, or can you recommend a better work on this subject?"

[For a cheap work Elliott's work is a very good one. If one wants to go into the matter

very intelligently Downing's Landscape Gardening, or Scott's Suburban Home Grounds will be very useful. Though an English work, Kemp's "How to lay out a Garden," will well repay perusal.—Ed. G. M.]

GRASS FOR LAWNS.—M. P. D., Zanesville, Ohio: "What variety of grass seed would you use to make a close, firm sod on lawns and small yards in the city? By answering this question you will confer a great favor."

[For your section of the country you will need nothing better than simply Kentucky Blue Grass—*Poa pratensis*.—Ed.]

AMPELOPSIS VEITCHII.—A., Geneva, N. Y., writes: "We wish to call your attention to what seems a great injury to the *Ampelopsis Veitchii*. On the residence of George S. Conover, Esq., is one of the largest plants in the State. It covers the south, east and north side of his brick house, with its fine clinging tendrils, covered with the small leaves peculiar to the young growth and the large branches covered (interspersed) with its larger leaves and longer stems.

The vine at its ends last winter on the south side was winter-killed two to four feet from the ends. But the free growth of an established plant soon overcomes the slight winter killing. Recently, on all sides of the house, many branches of this fine plant have died—the wood dies and the leaves wilt. It seems like blight. Has any one seen the same, and is it going to condemn this variety? The same thing has not appeared on three or four year plants."

[The excessively warm days, and sudden low temperature of last November, injured many very hardy things last winter, *Ampelopsis Veitchii* among the rest. The conditions were so extraordinary that we may not look for an early repetition of the injury. The other is a more serious matter. It is the first instance of the kind that we have heard of. If allied to the fire blight in the pear, it can be readily ascertained by examination. In the fire blight, the fungus which causes the disease does not occupy more than an inch or two of space, and its work can be readily traced at the base of the dead branch. There where the bark and wood is actually killed by the fungus it is dark and dry; above the fungus-girdled spot the wood dies rather for want of moisture, and is of a greenish brown. An examination of the *Ampelopsis* will show how it is.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

CUT TEA ROSE TRADE—Safrano, Bon Silene, Isabella Sprunt.

BY W. E. MEEHAN, PHILADELPHIA.

Of the roses that are forced for the cut flower market, Teas, Safrano, Bon Silene, Isabella Sprunt, Cornelia Cook, Douglas and Niphotos; Noisette, Marechal Neil; Hybrid Perpetual Jacqueminot; Hybrid Tea, Perle des Jardins, are the principal. Others, like Mad. Capricine, Malmaison, La France and Paul Neron, either have not paid the grower for forcing, or for some other cause, had, or will have but a brief existence in the flower market. The others, it is safe to say, will always be forced, especially the first mentioned, viz.: Safrano, Isabella Sprunt and Bon Silene, the subjects of the present articles. Safrano a deep saffron color, Sprunt a pale sulphur yellow and Bon Silene a deep pink.

These three have become a necessity to the florist and cannot well be done without; Safrano and Sprunt being used for all and every kind of work; in funeral pieces, especially, Safrano being in demand; its rich saffron hue giving a clear relief to the otherwise dead white of the design. In Philadelphia, not less than fifteen thousand of these three roses are used daily; in New York and Boston the amount consumed is probably nearly double that quantity, so that in the three cities there can hardly be less than seventy thousand roses used daily. Indeed, it is more than probable that these figures, if an accurate count could be had, would be found to be far below the actual number consumed.

Except, perhaps, Jacqueminot, no rose is "bulled" and "beared" to such an extent as are these three. In New York, during the busy season when the price is naturally high, the writer has known it to vary two and three dollars a hundred inside of twenty-four hours. On one occasion, especially, when a great scarcity and demand was expected, the growers by storage bulled the roses to fifteen dollars a hundred, when, in consequence of an overload and an unexpected stand against the price, made by the retail men, the figure broke and the roses sold in the afternoon at all figures, varying from six to eight. This, of course, caused considerable loss

and sickness among the growers, who could before the break, readily have disposed of their stock at a slight advance on eight. Such a bulling transaction is not expected again soon. Only once since that did these roses reach fifteen, and that was by a natural rise in the market, the crop having for a long time been short and the demand heavy.

As the prices of these three teas vary so much, rarely being steady for more than two or three days, of course nothing more than a doubtful monthly average can be made. The following table will give it as nearly accurate as it is possible for the writer to make it:—

November, First half, per 100.....	\$1.50
Second half, ".....	2.50
December, First ".....	5.00
Second ".....	\$8.00 to 12.00
January.....	6.00
February.....	6.00
March*.....	3.00
April†.....	3.00
May.....	2.00
June.....	2.00
July, First half.....	1.50
Second half.....	1.00
August.....	1.00
September.....	1.00
October.....	1.00

*If Easter, higher. †If Easter, higher.

Contracts for the whole or certain quantity of the stock are made for the season, viz.: from November to May, at three dollars per 100.

The Boston growers have another system of contracts which is about as follows: Nov. \$2, Dec. \$5, Jan. \$5, Feb. \$4, March \$3, April \$3. The grower in three cases out of four has the best end of the horn on either contract, and retail men are rapidly finding this out and less contracts are made. The best Safrano, Bon Silene and Sprunt roses taking the number of growers, are raised in Boston. The best individual grower in the country is among a community of florists on Union Hill near Jersey City.

Three out of every four buds raised for the Boston market are Bon Silenes, the city from which it had its first vigorous send-off. In fact, Bon Silene is known to-day as the "Boston bud." In Philadelphia, people asking for Tea Roses, generally mean Safrano or Sprunt. The writer has more than once got himself in hot water in the first year of his business career, by sending Bon Silenes with Safranoses, when "Teas" were ordered.

It is a curious fact that those who are used to handling large quantities of Tea Roses soon become so accustomed to them as to be able to distinguish the stock of the different leading growers. This is assuming, too, that the stock is all equally fine. Oftentimes the reason of this cannot be explained. The difference is felt and not describable. Sometimes it is a slight difference in the color of the bud or foliage, or the solidity of the bud. Of the growers of Tea Roses there are but few that cut over one thousand in a day, and I very much doubt if there are any that will average that number from November 1st to May 1st. The general average among those who pay attention to them will not exceed three hundred each.

STEAM HEATING.

BY R. G. PARKER & CO., BOSTON, MASS.

We are very glad to see that our little article on the heating of greenhouses has at least succeeded in agitating the new, or perhaps more properly, reviving the old idea of the effectiveness of steam in the minds of practical men, such as your correspondent, Mr. Salter; and as we have invited such friendly criticism as his, we shall endeavor to the best of our ability, to respond to his queries.

The cubical contents of our establishment which we heat, are about 65,000 feet distributed in several houses—none of which are glazed with double thick glass. The average temperature we require for the stock grown in the houses is about 55°. The number of feet of four inch pipe we use would be of no use as a comparison, as we have considerable direct steam radiation, and we must affirm that we have found the steam quite as efficient, and less expensive than water. The first cost of the steam boiler and connections is about the same as hot water, with many things in favor of the steam boiler.

We perfectly agree with Mr. Salter, that the slow soft warmth obtained from hot water is preferable to overheated mediums, such as flues, but we have yet to discover any baneful effects produced by growing plants in steam heat; and we can but think that the reason why hot water superseded steam in the olden time, was not from any ill effect produced by steam, simply from the incompleteness of the apparatus used, and its great cost, both of which difficulties have now vanished in our forty years later experience; we therefore still do honor to Mr. Loudon's opin-

ion that steam is both simple and effectual for heating glass structures.

Our fires are attended by the same men who had the care of them under the old regime, and have run them two years without any trouble. Their heads shook dolefully when the steam boilers were being put in, but now they affirm that the apparatus has conquered their prejudices. The fires require to be kept burning the same as a hot water boiler. We have never had to remain by our fires all night; they are generally left from between nine and ten o'clock until seven in the morning. We use an automatic steam damper, which is really the completing part of the apparatus, for without it we could do nothing.

It may be almost too radical to advocate the heating of glass houses altogether by steam, but from what we have seen and know we should not be surprised at any time to learn that some adventurous spirit had "gone and done it."

Whoever does it, and proves the efficiency or deficiency of steam, will deserve a medal from all the Horticultural Societies in the world.

Steam has proved itself the most efficient for heating other structures,—why not for glass houses. 10,000 cubic feet of air to be heated is much the same thing, be it in a church or a conservatory; the only difference being in the amount of radiating surface required.

As to Mr. Salter's difficulties, they do not appear in practice; we consider ourselves as safe with 5 or 10 pounds of steam as we should be with the water boiler. The whole apparatus is built to stand ten times the pressure that we subject it to; therefore our factor of safety is very large. We find that in twenty minutes from the time we build a fire, everything being cold, we can have our steam pipes hot; which certainly is preferable to waiting two or three hours for it. Of course the steam pipes are much hotter than water pipes, but the effect of these very small, very hot pipes is about the same as the moderately warm very large water pipes. The steam heating surface can be distributed over the houses with greater facility than water pipes, and there need be but one third as much of it. In our opinion, Mr. Salter's experiment would prove nothing beyond the fact that, if he were searching for a comparison between hot water and steam, and wished to reach a satisfactory result, he was on the wrong track.

The difference between steam at 212° and water at the same temperature, and under the same

pressure would be very little,—in fact, we fail to see how there could be any. We understand what Mr. S. means, but does not express, viz.: that a body of water will retain heat longer than a body of steam; that there is two hundred times as much heat in the water as is in the steam we very much doubt; but one thing is certain, and that is, if Mr. S.'s figures be correct, then it took two hundred times as much fuel to heat the water as it took to make the steam, or to put the heat into the steam.

The whole thing may be said in a few words. Our creed is as follows, viz.: That it is cheaper to boil a small quantity of water and keep it boiling, than to heat a larger body of water and keep it hot; and some day not in the far future, steam will supersede hot water as a heating medium.

We have combined the two in part of our houses in such a manner that if hot water has any advantages we may have the benefit, and at the same time save in many ways by making our water hot by steam. As yet, we can see nothing in favor of the water, while the advantages of steam are many. By heating a range of houses wholly by steam, the first cost would be much less, as only one-half as much material would be required; it would also be found to be economical in all ways compared with hot water.

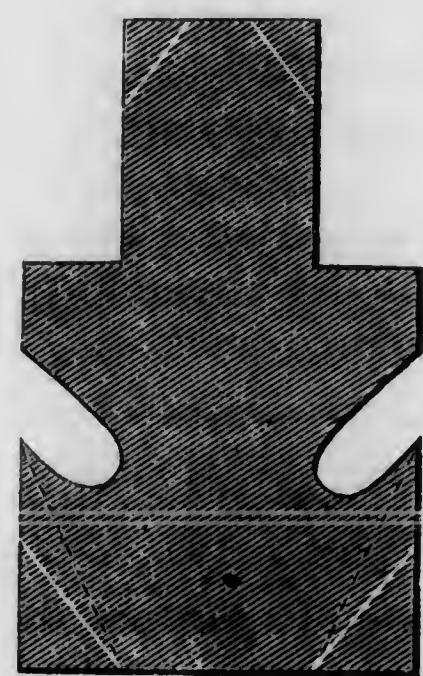
Large ranges of glass are now heated by ten or fifteen hot water boilers, some, we believe, requiring more. The whole work can be done by two fires. Think of the time spent running about from place to place looking after the ten or fifteen fires. We are not theorizing; we are merely telling our experience, and Mr. Salter must excuse us if we do not give his theories that attention which they may seem to deserve. Nor do we believe that a greenhouse can be heated without fuel; as, in our estimation, a few tons of coal more or less amount to nothing, so long as we burn it profitably to ourselves. In a well constructed apparatus the more coal that is burned the more heat we should get; and when we have heat enough we can stop the coal supply of the fire. If Mr. S. should happen in Boston we would be happy to show him our steam heating apparatus, and shall hope to be able to convert him to the true faith.

P. S.—Since writing the above we have received the August number of the GARDENER'S MONTHLY, and wish to say that Mr. Bochman is the "adventurous spirit," and we wish to take his hand through the G. M.

SASH BARS.

BY W. L. SMITH, AURORA, ILL.

I would like to occupy a small portion of space in your valuable columns in calling attention to a new style of sash bar, of which I enclose a small section for your inspection. My attention was first called to this as an improvement, by an article in the Gardeners' Chronicle, in which the merits



of this style (or something similar) were illustrated and commented on. Its excellence at once struck me, and I set about finding some one to manufacture a lot for my own use. In this I experienced considerable difficulty, many of the sash men saying they knew of no tool that would make a groove of this kind; but was finally successful, and should any of your readers experience the same difficulty, will be pleased to give them the names of the parties who are making them for me.

I might enlarge considerably on the merits of this bar with the side grooves for carrying off the water, but doubtless you and all others interested in the construction of greenhouses will appreciate them fully without further remarks from me.

[Bars like these noted by Mr. Smith, have been in common use about Philadelphia for some years, where the sash factories have had the proper tools to make them. They are highly appreciated by those who know their value, and it will be a service to Western plant growers to know that they can be had there now as well as here. We have marked by white lines a portion that would be better cut away. It would add materially to the light of the house without interfering much with the strength of the bar. Perhaps the upper part would be better sloped for the same reason, though we never saw it done. It would weaken the bar but little,

while a very little here makes a great difference in the light in the house. In these days when we use putty only beneath the glass for bedding it, there is no use for any wood above the glass beyond what is to hold the sprig used for fastening the glass.—Ed. G. M.]

CYPRIPEDIUM BARBATUM.

BY WALTER GRAY, COLLEGE HILL, CINCINNATI.

In reply to Mrs. R. P., page 237, having no success with the cultivation of *Cypripedium barbatum*, it is probable that the roots are in bad condition. I would advise to re-pot the plant at once in good, rough, fibrous peat, with a small portion of live sphagnum moss, well drain the pots so as to allow the water to pass through the compost freely. It requires plenty of water when growing; in fact, it should never be allowed to get dry. It is much subjected to a small light brown thrip, which greatly disfigures the leaves. I have found a good remedy to keep this pest down, is a little tobacco powder dusted upon the parts affected. It also requires a damp atmosphere with plenty of shade.

Respecting the plant of *Bryophyllum calycinum*,—so named from bryo, to grow, and phyllon, a leaf,—in reference to the circumstance of the leaf, when laid upon damp earth, emitting roots whence arise young plants; this plant requires very little water and pot well drained. It flowers best when plunged in a little bottom heat; and requires a rich loamy soil, which suits it best.

In reference to a White Climber, I could not recommend any plant to suit your purpose better than *Jasminum ligustrifolium*. There are several other varieties of *Jasminums* that flower white and very early in spring, and are sweetly scented.

INCREASE IN THE FLORIST BUSINESS IN CINCINNATI.

BY W. G.

It may interest some of the readers of the GARDENER'S MONTHLY to learn that the city of Cincinnati is famous for its florist and cut flower trade. The Cincinnati Floral Company takes one of the leading parts in this business. They have a very large and extensive arrangement of greenhouses situated at College Hill, where are grown some very fine specimens of exotic plants, as well as plants to suit the large demand for their cut

flower trade. Two large houses are devoted to huge specimen Palms, Ferns, Marantas, Philodendrons, Pandanus, Crotons, Dieffenbachias, &c. *Latania borbonica*, 12 by 14 feet, *Sabal princeps*, 8 by 10 feet, *Chamærops Fortunei*, 9 by 11 feet, *Areca lutescens*, a noble plant, *Seaforthia elegans*, a fine specimen, 14 feet high, *Cocos Wedeliana*, *Kentia belonoreana*, &c., also a grand plant of *Maranta princeps*. These plants are eminently adapted for decoration of apartments, and many species produce a charming effect in the flower garden during the summer months when protected from the direct rays of the sun. One house is devoted to large specimen Ferns of great variety, and another to new beautiful and rare plants. Two large houses for the large demand of *Smilax*. There is now a very fine house of *Grapes* just fit for market. The house is 24 by 200 feet, filled with Black Hamburg and Muscat of Alexandria. They expect to cut about 3000 pounds weight of fruit out of this house. The floral company has also erected some very fine rose houses, probably the finest in the States; they are three in number, planted with Bon Silene, Safrano, Isabella Sprunt, Marshal Niel; also a very fine house filled with the very best varieties of Camellias. Great credit is also due to the Cincinnati Floral Company for their fine selections of bedding plants,—the great varieties; and no expense has been spared to secure the very best sorts and they are grown by the thousands and shipped to all parts of the Union. Any visitors coming to Cincinnati are respectfully invited to see the Greenhouses, &c., and by calling at the office and store of Cincinnati Floral Company, 187 and 189 W. Fourth Street, will be directed to their College Hill establishment, where they can spend a very happy time in the beautiful grounds which are kept in the best of order. I would also say that this enterprising company was started only two years ago and is making great progress in their undertaking. Great credit is due to them for the practical manner in which they conduct their business.

CARNATION, PETER HENDERSON.—ITS VALUE FOR CUT FLOWERS IN WINTER.

BY W. T. BELL, FRANKLIN, PA.

I have been favored with an opinion on this subject from thirteen different florists, and they are all favorable to the variety, although two of them mention that there has been some dispute as

to the keeping qualities of the flowers when cut. One firm tested this, by placing one hundred blooms in an ice chest for ten days, when at the end of that time they appeared as fresh as when taken from the plants.

Its good qualities, as gathered from the reports and from my own experience, are, 1st. The plant is a strong grower and a free bloomer; 2nd. The flowers are of large size; I have myself grown them with ordinary treatment, two and three-quarter inches in diameter. 3rd. It retains its white color with greater constancy than any other variety with which I am familiar.

EDITORIAL NOTES.

THE HARDY HEATHS.—It is surprising that these beautiful plants are not oftener seen under culture. In Germantown, recently, we saw some specimens several years old in beautiful flower, the owner of which simply threw a few dry leaves over them with brush-wood to keep the heavy winds away. In most winters this would not be necessary, but it is like an insurance premium. The kinds we saw were *Erica vagans* and *Calluna vulgaris*—the last particularly successful.

MEMORIAL TREES.—Dr. Rivinius, of Germantown, grandson of the celebrated botanist after whom the Rivinia or Rouge plant is named, planted on July 31, 1879, a Purple Beech tree, and on the same day in 1880 a large White Pine, commemorative of the birth days of two of his children. Both of the trees grew remarkably well. Apart from the interest attached to the planting of memorial trees, it may be news to many, that trees can be successfully planted at any time during the summer season, if intelligently handled.

A HUGE AZALEA.—When on a hurried run in Boston early in the summer we passed over to Prof. Sargent's and saw his huge *Azalea decora*; one of the finest specimens perhaps in the world. The writer made a rough estimate of the number of flowers in bloom on it as 7,000. Some companions thought the estimate far too low; 10,000 being suggested as the lowest limit. Soon afterwards we had the following note from Mr. Sargent: "You certainly beat all the Yankees in guessing. They have just cut off 7,646 seed vessels from the big *Azalea*."

SCRAPS AND QUERIES.

DISEASE IN MARESCHAL NIEL ROSE.—A., Geneva, N. Y., writes: "We have a good Mareschal Niel Rose in the green-house, four or five years old, which has grown and blossomed freely. On the old wood there has appeared at a foot from the ground, and also in the top (on two-year wood) a 'blister.' The one at the bottom extends all around the stalk, and is a foot long. The bark is dry, breaks off in cork-like pieces, is rough and ungainly. It has been painted, treated with sulphur paste, &c., but the remedies do not heal it, and the whole bush seems fated. Can we do anything for it?"

[We know of a case of two years' standing; but it has not seemed to injure the vigor of the plant in the least degree.—Ed. G. M.]

ANTS.—Mrs. H. B., Guilford, Conn., writes: "We are losing all our *Pelargoniums* by the ravages of white ants, that eat into the root stalks and follow up the branches, hollowing the whole plant. They have troubled us in the cellar-timbers of our dwelling-house, and we've tried various poisons without effect. Now they are in our garden, and we want to know if anything will destroy them. Can you give us any light on the subject?"

[In the house, scrub the infested places and strew Elder leaves about. For ants about flowers, a friend informs us that a very little salt—not enough to injure the plants—will drive them away.—Ed. G. M.]

EARTHEN FLOWER-POTS.—M. P. D., Zanesville, Ohio, asks: "I see by the last GARDENER'S MONTHLY a subscriber inquires about earthen flower-pots, which, he says, he saw in an article in the *Scientific American* several years ago. I have never noticed an article in that valuable paper upon that subject, but August Rolker & Sons, 44 Dey street, New York, advertise a press for making soluble flower-pots; also they send a receipt for making. I, too, would like to know if it is a practical machine for florists' use."

ROOTING A SAGO PALM.—A Belvidere, N. J., correspondent writes: "I asked your advice in regard to a Sago Palm, with two crowns; you advised splitting. I did so, but unfortunately one had neither root nor sign of one, but I plunged it in the sand among my cuttings, and when I left home three weeks ago it had made a growth of root of two inches, and the crown was be-

ginning to push. This may not be new to you, but was a surprise to me."

GREENHOUSE BULBS.—E. M., Oxford, Miss., writes: "Will you be so kind as to give us in your valuable MONTHLY some account of the proper treatment of *Alstromeria* after they have bloomed? I had some to bloom beautifully, but now don't know how to care for them. And, about *Pancratium*. I cannot get them to put out a leaf. One bulb of *P. maritimum* I've had in a pot for some four months. Its roots are in beautiful order, new made, and white, but it won't leaf. I have it potted like *Amaryllis*. And my *Amaryllis Belladonna*; they're askew. I bedded six fine bulbs in the spring of '79. Not a leaf until winter set in, when they began to grow, but of course were soon killed down by frost. This summer they are dormant again. Now, the books say it is hardy; but that would imply, I should think, that it would bloom a little as well as exist, else being hardy is no recommendation."

[At Oxford, Miss., the thermometer would probably seldom reach 20° in winter, and then not for long. Under these circumstances the two plants ought to flower by being left in the open ground, with a little protection to keep the frost from reaching the bulbs.—Ed. G. M.]

PAULLINIA THALICTRIFOLIA.—C. says: "Will some of the readers of the MONTHLY please give me some information concerning *Paullinia thalictrifolia*. Is it a hardy shrub? To what natural order does it belong, and of what country is it a native, and in what year was it introduced? And what is *Euphorbia piscatoria*?"

AZALEA.—ANSWER TO E.—Mr. R. J. Halliday, Baltimore, writes:

10 *Azaleas*, Double, distinct kinds.
Bernhard Andre, violet crimson.
Bouquet de Roses, bright clear rose.

Borsig, or Flag of Truce, white.
Francois De Vos, deep crimson scarlet.
Glory of Summinghill, salmon.
Rachael Von Varnhagen, rosy purple.
Souvenir de Prince Albert, white and rose.
Madam Jus Lefebore, dark orange.
Jean Vervane, crimson, white and rose.
Mme. Maria Van Houtte, white and salmon, striped like a carnation.

10 *Azaleas*, Single, distinct kinds.
Baron de Vriere, salmon rose, dark spots.
Coloris Nova, dark carmine,
Eulalie Van Ghert, pink and blush.
Punctulata, cherry red, striped white and spotted.

J. Gould Veitch, lilac rose.
Glory of Belgium, white, striped and spotted fringed.
Pride of Dorking, vivid crimson.
Theodore Prusser, deep rose, shaded violet.
Marquis of Lorne, deep orange blotched.
Vesta, Bride, Fielders, or Alba, for white.

WINTER TEMPERATURE.—Mr. Terwilliger writes: "In my article, page 201, the lowest temperature for 1878 and 1879 should be *minus* 20°, or 20° below zero."

EARTHEN FLOWER-POTS.—"Paris, June 15th, 1880. Dear Sir: In answer to a question of one of your readers, page 172, 'Earthen flower-pots,' I have published on page 172 of the *Journal de la Société Centrale de l'Horticulture de France*, March, 1877, an account with cuts of the machine invented and sold by Messrs. Koenig & Foltzer, of Colmar, (Alsace,) to manufacture earthen pots. Your friend and reader may apply to those gentlemen to have a good machine, together with mode of using it.

Respectfully, CHS. JOLY,
11 Rue Boissy d'Anglais, Paris."

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

NEW EARLY PEACHES.

BY H. M. ENGLE.

This subject continues to be new, as there are varieties added each year, most of which are to

be earlier than any previously introduced. I have this season fruited fifteen varieties earlier than Hale's, viz: Cumberland, Saunders, Downing, Briggs May, Honeywell, Climax, all glandless varieties; also Amsden, Alexander, Wilder, Musser, Bower's Early, and Gettysburg Seedling;

all with leaves having globose glands; and Beatrice, Louise and Rivers, having reniform glands, all in the same orchard, now in its fifth year.

The result of another season has strengthened my conviction that on our grounds Cumberland is the earliest peach yet fruited, closely followed by Saunders and Downing, with Alexander, Amsden and Musser very little behind Wilder, although ripening some fruit nearly as early as any, continued to ripen much longer, so as to close with Rivers and Louise, which came in fully two weeks behind the earliest varieties, Early Beatrice coming between.

The season being unusually early, we picked the first ripe specimens from Cumberland on June 24th, and marketed the first bushel June 26th, and to-day, July 23d, we pick the last Wilder, Louise and Rivers, while Hale's will barely be ripe by Aug. 1st. The other new early sorts which are growing on our grounds, and which we expect to fruit in a year or two at most, are E. Canada, Early Rose, Hyne's Surprise, Ashby's Early, Baker's Early, Brice's Early, Early Lydia, Nectar, Gov. Garland, Waterloo, and McKain's Early, all having globose glands, except Early Lydia, which is glandless and Waterloo, which has reniform glands. I make this distinction that they may be recognized, as the glandless varieties, are invariably weaker growers, and the leaves and young wood are more or less subject to mildew on some soils and during some seasons. We are indebted to Mr. T. V. Munson, of Denison, Texas, and to Mr. Hynes, of West Plains, Missouri, for most of the aforementioned varieties which have not yet fruited. Mr. Munson has probably the largest collection of quite early peaches in the country, which he is testing with the view of making public the results of his experience. In an article published in the Denison *Daily News* of June 20th, 1880, he says, "the present season has been a peculiar one, retarding the maturity of the extra early varieties, while the later came on in unusual season. This has thrown the ripening of nearly all varieties up to Hale's Early, into a heap. It has been noticed, too, that the old, well-established trees have ripened fruit much earlier, and of larger size, than young trees of the same variety." Our experience this season is that they were unusually early, and will leave, apparently, a larger gap between the quite early and later ones than at any previous season since these quite early peaches have been fruiting.

Some of our friends who have fruited Wilder, re-

ported it as filling the season between the quite early kinds and Hale's, but with us it invariably ripened as early as Alexander and Amsden, but continued its crop a little longer. Bower's Early and Amsden on the same tree showed the latter to be several days earlier. In our orchard of several hundred trees, about 75 were in full fruiting, many being entirely overloaded. The crop was unusually fine, high colored, and with the exception of a few trees, quite free from rot, while Hale's not yet ripe is rotting considerably. I am not sanguine that these early kinds will continue exempt from rot, but may we not reasonably hope that some of them will? All these early kinds thus far fruited are, like Hale's, half clings, and no doubt, seedlings from it, except Rivers seedlings, which are of a different class, and which we shall discard, Beatrice being too small and the others too tender for market.

New early varieties are still being introduced, and we shall continue to collect and test them as fast as we can, in order to prove, if possible, which is the earliest peach. Meanwhile, we look forward for a freestone as large and fine as "Mountain Rose," and as early as the earliest.

THE OLD SECKEL PEAR.

BY JAFET.

I had heard from a friend, of the old, original accidental seedling, the parent stock of all of that ilk extant, and the story gradually infected my imagination. It began to haunt me. I saw it—

"In my mind's eye, Horatio,"—

standing like a sentinel down there in "The Neck" among the dikes and ditches; living through slow and patient history; watching through its "two hundred years," so the story goes, and listening to the hum and stir of distant life in the Quaker metropolis, and the growing traffic of the two rivers that washed the meadow's foot more than one hundred and fifty years from this 31st day of July, 1880.

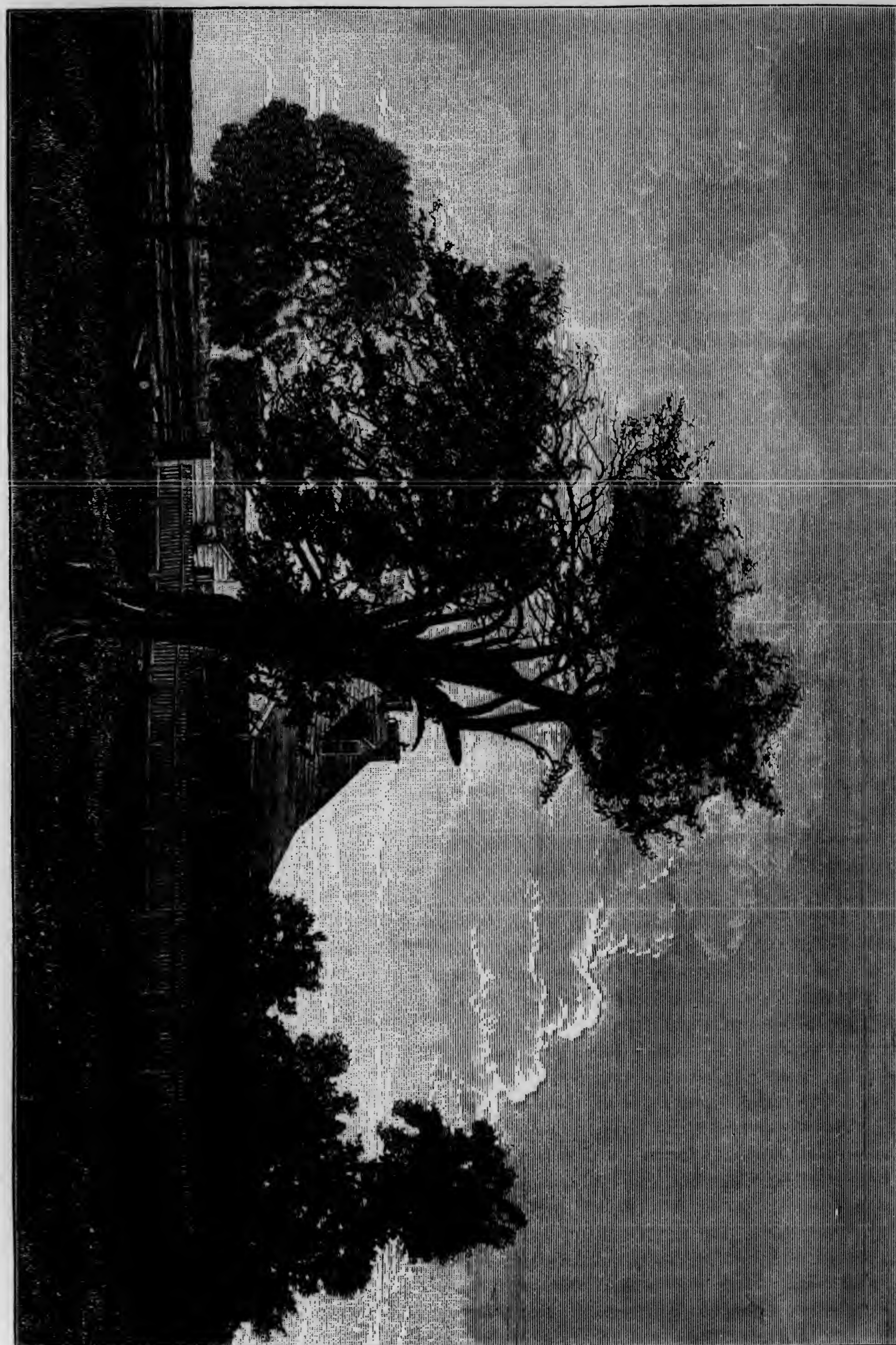
"More than one hundred and fifty years ago"—say the "Neckers"—the first dike was thrown up to reclaim the meadows on which they and their fathers' fathers have lived and moved and had their being; fighting the waves at spring tides, and the rheumatiz' more at their leisure; but never much troubled with a dry time, even though there be but a fraction of an inch of rainfall in a month, or a whole dry summer never so long.

It is a fat land down there, and has its blessings and its drawbacks like other places. A

Photographed and Engraved expressly for
THE GARDENER'S MONTHLY.

THE ORIGINAL SECKEL PEAR TREE.

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hardy race grows and thrives, and feeds others out of the rich alluvial, but lays its bones away on higher ground, for

"water is a sore decayer of your whorson dead body."

And so they lay them down at last, on green and gravelly slopes, afar from the music of the singing birds of their household groves; and so their sons and sons' sons have come and warmed the old homes and kept the old names and mansions awhile in the meadows, and then followed on to the narrow house in the higher ground. But this is wandering from the old Pear tree. That, I had some trouble to find, of which more anon.

The "facts" above stated, expressed more in the local vernacular, I had from an old Necker, who did not dream himself, but set his listener dreaming.

Who munched the pear, and thoughtlessly dropped the core over the side of what vessel, as she passed the "Back Channel? And when? It must have been between 1682 and 1720; for that core floated to fast land, seeded and inaugurated its celebrated distinct variety far inside the old dike that more than one hundred and fifty years ago first barred back the waters from their accustomed flats. May it not as likely have been in the first named year as at any time in the interval between that and the latter? For what is thirty-eight years, more or less, in the life of a pear tree, whose "more than one hundred and fifty years" have to-day been resolved out of its indefinite past? And who shall say it was not Penn himself, as likely as any of his fellow-voyagers,—or as those in the few following years,—who cast overboard the unconscious seed of the land-mark of the two centuries then to come?

Up to the day noted in the first paragraph, I had never seen the object of my lately awakened enthusiasm. Nothing would do until I could set eyes on it, if yet standing; and if not, alas what had I thoughtlessly neglected, for a lifetime! My friend had described it as "still standing fifteen years ago, but with one-half decayed off the trunk, the balance a mere shell, supported by props, and piously guarded with posts and rails," ready to fall and pass away forever. He gave me a verbal notion of the direction and distance, relying more upon a reference for particulars to his description of his own visit published long ago in the GARDENER'S MONTHLY. Neglecting this at the time, I was not aware of its more particular reference to exact locality.

His interesting article is well worth reading, and will be found in vol. 7, page 44, Feb. 1865.

I had, therefore, a loose notion of the general locality, comprising, perhaps, a couple of square miles, anywhere within which it might be, and over which I might have to roam vaguely and guessingly. In that area there were, possibly, many descendants of the old patriarch pear, themselves aged; and one might risk being sentimental over some decayed sample of several generations later than the real, simon-pure-great-great-grandfather of them all. My friend's verbal directions were months old, and, refracted by my own unsafe keeping, were, as a guide, about as reliable as young Launcelot's directions to Old Gobbo.

"Old Gobbo—Master young gentleman, I pray you which is the way to Master Jew's?"

Launcelot—Turn up on your right hand, at the next turning, but at the next turning of all, on your left;—marry, at the very next turning turn of no hand, but turn down indirectly to the Jew's house."

Thus prepared (?) for the search, I started for it overland, on the hottest day of this hottest of Julys; but was driven back by the heat, fatigue and uncertainty of location, reinforced by growing lateness of the hour. So on the last day of July I tried my second parallel, and attempted to flank the position by water, taking the little steamer at foot of Chestnut street, Schuylkill. Making a demoralized landing at a rotten, half burnt, plankless oil wharf, I reached land by perilous gymnastics over the tops of bare wharf piles, and formed again in good order. But a Necker's "half mile" is a full mile and a half. I walked to and fro four miles, prospecting around, and brought up at a country hotel on the "Old Rope Ferry Road," corner of a lane. Reader, don't try my route, but take the one I found out since. It is very simple. A stage from Peter Wright & Sons, 307 Walnut street, goes all the way twice a day, passing this point; fare 75 cts. round trip. And so cut your eye teeth on my experience. It is easier.

A busy ostler was sponging a critter at a trough. We had a talk.

Jafet—How long have you lived in these parts?

Ostler—Boy an' man, all my life,—some forty year.

Jafet—Then perhaps you know of a very old pear tree somewhere in this region.

Ostler—The old Seckel d'ye mean! Know it? I sh'd think I orter; many's the pear I've had off'n it too. D'ye see that lane right wher' yer standin'? That big yaller house down ther's John

Bastian's, and he has the old Seckel, if't has'nt blowed over. But stop, mister, tha' don't ripen jist yit, if that's wot yer goin' fer.

To think I should reach Mecca in this unsentimental way, and not on a cloud, or the back of a camel!

I found Mr. Bastian sitting on his porch. He received me very kindly, and directed me to the identical spot. Sure enough, there stood the ancient of days and its surroundings, "the old stone house, the sloping meadow and the ditch." Eureka!

The half trunk was a mere shell when Mr. Bastian first knew it forty years ago, and he says it was "much the same as now." At least half the circumference is gone. At 3 feet 6 inches from the ground, it measures 5 feet 4½ inches around the half trunk and across the exposed diameter. The diameter, from bark to bark is 23½ inches. I estimate the full circumference when whole and sound, as having been at least 6 feet 6 inches, 3½ feet from the ground. The fraction of all that remains of the old storm-beaten, ancestral Seckel Pear is 26 feet in height. It had about one peck of pears, when I saw it.

The old stone house must be one hundred and fifty years old. It is of one story and attic, and the walls are like a fort in thickness. Mr. Bastian now lives in his more commodious mansion near by on a rising ground. His son, who was born in the old stone homestead, lives there now with his family. There are many very old homesteads all through the Neck. They are perhaps, with the exception of the old Swedes Church, among the oldest buildings remaining in the city. Mr. Bastian has owned the old Seckel farm forty years. At the time he moved there the late Thomas P. Cope told him that the Seckel family had known the old tree for eighty years. Eighty plus forty makes one hundred and twenty years to begin on. Perhaps some one reading this article can furnish data of an earlier experience, going backward from the year 1760, which this gives us,—and so verify the tradition of "more than one hundred and fifty years and perhaps two hundred."

EDITORIAL NOTES.

RIPENING OF RASPBERRY CANES.—When we come to inquire whether a Raspberry or Blackberry is hardy, it simply comes to asking whether any grower's plants are healthy. The Raspberry and

Blackberry are naturally natives of very cold countries, and if the plants have their natural vital powers, are able to stand any degree of temperature they are likely to meet with in most parts of the United States. It is only when these vital powers become enfeebled that they succumb, and when thus enfeebled, even a white frost may be enough to render them "not hardy." Unfortunately this fact has not been made prominent, and hence little is known of those enfeebling causes. Yet it has been long enough known that kinds perfectly hardy in the severest weather come in time to be very tender; and this is especially true of those kinds related to the *Rubus Idæus* of Europe. Sometimes the vital power is weakened by the attacks of fungi on the leaves, at others on the roots, and then insects on the roots may be as bad as fungi.

LITIZ APPLE.—This was distributed some twelve years ago by Jacob Miller of Litiz, Pa. A specimen before us, Aug. 4th, shows it to be a very good summer apple. It is medium size, and belongs to the class of light colored apples, of which Primate, Cooper's Early, and Carver are illustrations.

MEXICAN VEGETABLES.—Mr. W. H. Dougherty, of the Philadelphia Academy of Natural Sciences, brought from Mexico, last winter, some dried specimens of a fruit known in Mexican markets as Chiote. It was about the size of one's fist, prickly on the outside, and contained one or two seeds as large as a Lima bean. It belongs to the Cucumber family, and proved to be the *Hanburia Mexicana* of botanists. There are probably many of these Mexican vegetables that would be worth introducing here.

THE SUSQUEHANNA PEACH.—As showing the variation in the great fruit belt of the United States, it may be noted that the Susquehanna peach, which in its native home in Central Pennsylvania is a September peach, is ripe at the end of July in southern Georgia.

THE SECKEL PEAR.—There are few who eat a Seckel pear but feel a sort of gratitude to the originators for the delicious morsel, and a natural desire to know all possible about its origin. A correspondent favors us with a sketch of the original tree, and an account of his pilgrimage to the place of its birth, which we are sure will be read with great interest. Our publisher has had the old seckel pear tree photographed, and an engraving made from it for this number.

THE KIRKWOOD STRAWBERRY.—This variety is said by some of the cultivators to be "a remarkable strawberry."

A NEBRASKA FRUIT FARM.—The fruit farm of ex-Governor Thomas of Brownsville, Nebraska, contains 500 bearing apple trees, 5,000 bearing grapes, 200 bearing chestnut trees, and small fruits in immense quantities.

THE CREAM OF THE STRAWBERRIES.—Under this head Mr. Peter Henderson has issued a beautiful colored plate, showing Glossy Cone, Harvey Davis, Black Giant, Jucunda, Seth Boyden, Monarch of the West, Sharpless and President Lincoln. The two last occupy the place of honor in the centre of the plate, being much the largest. President Lincoln appears to the best advantage on a picture, because it is a cock's comb shape, but we suppose a dozen Sharpless would really outweigh a dozen President Lincoln.

TRAPPING DOGS AND CATS.—An English judge says: "Where a defendant caused traps scented with strong-smelling baits to be placed on his land, so near to the plaintiff's house as to influence the instinct of the plaintiff's dogs and cats, and draw them irresistibly to destruction, it was held that the defendant was answerable to the plaintiff for the injuries sustained, although he had no intention of injuring the plaintiff particularly; and it was also held that he (defendant) would be responsible for injuries sustained by any dogs (or cats) tempted from the highway or public paths to the traps on defendant's land, for he had no right to invite them there for the purpose of destroying them."

GRAPES IN GRAPE HOUSES.—From an excellent article in Mr. Robinson's *Gardening Illustrated*, we have the following about mildew, which will be of service to some of our grape growers: "Before proceeding further, I would caution amateurs against the too free use of the syringe. It should be remembered that this instrument is merely a means provided for counteracting undue aridity in the atmosphere; therefore never employ it in dull, cloudy weather; and syringe early, so that every particle of moisture dries off by night. The syringe used with discrimination has great value; but in the hands of some it proves rather an enemy than a friend. Mildew, that worst of all enemies of the grape grower, will quickly make its appearance when excessive use is made of the syringe. This pest, unlike the red spider, only comes when a too damp, stagnant atmosphere is maintained;

it will, therefore, be seen that the vine grower must at all times seek to preserve a happy medium, avoiding the extremes of aridity and saturation. The mildew, however, makes its approach in such an insidious manner, and, when once in full possession, is so difficult to dislodge, that the inexperienced grower too frequently has to suffer great loss and vexation before he can destroy it. The best way is to hinder its approach, which may easily be accomplished in the following manner:—As soon as the berries are as large as No. 1 shot, mix up some flowers of sulphur into a paste, and then, having stirred it into a pail of water, syringe the vines with it. It is not the great quantity of sulphur that is needed, but rather its equal distribution. A few grains on each leaf is enough. Be careful never to use black sulphur, the employment of which may cause the most disastrous consequences; and do not apply sulphur of any kind until the berries are fairly swelling. Many a crop of grapes has been ruined by dusting or syringing with sulphur before the skin of the berry has become thick enough to bear its application."

POPULAR STRAWBERRIES.—The following is the list of strawberries for which premiums were offered by the New York Horticultural Society; and it gives some idea of the great number of kinds that have some popularity about the city of New York: Beauty, Black Defiance, Captain Jack, Champion, Charles Downing, Col. Cheney, Cumberland Triumph, Duncan, Duchesse, Forest Rose, Green Prolific, Great American, Hovey's Seedling, Kentucky, Kerr's Prolific, Jucunda, Lennig's White, Monarch of the West, Nicanor, Pioneer, President Lincoln, Prouty's Seedling, Seth Boydon, Sharpless, Sterling, Triomphe de Gand, Wilson, President Wilder.

EUROPEAN PEAS.—We think it about time American pea growers set about raising their own varieties, so as to have kinds suited to our hot and dry climate. We had the opportunity of noting many of the celebrated English early kinds growing side by side this season, and none of the much vaunted novelties were equal to the Daniel O'Rourke, also an European. Of course every leading American seedsman has his "extra early," but we do not understand that they put these out as distinct kinds.

EARLY STRAWBERRY.—The Belgians say their best early Strawberry, and one very useful for forcing, is Louis Vilmorin.

QUERIES.

ISHAM SWEET APPLE.—Messrs. Baird & Tuttle say that "Isham Sweet was sent out by F. K. Phoenix about four years ago. Originated with Mr. Isham, of Delaware, Wis. We have seen the fruit, and believe it possesses qualities which no other apple of its season has. Mr. Phoenix regarded it very highly, and thought it was destined to occupy a high position among apples. It has been tested in Minnesota, Vermont, and in many other States, and so far reports have been very

will you recommend other early varieties for table use, as we wish to plant a new vineyard. We grow Catawbas and Concords in large quantities."

QUESTIONS IN FRUIT CULTURE.—Not having had time to reply personally to the following questions, we give them here, hoping some of our readers will help the writer:

"At the last meeting of our Horticultural Society I was appointed as correspondent with Eastern Pomologists concerning the blight or insects that affect our orchards. At present the



ISHAM SWEET.

favorable. It is a seedling of Bailey Sweet from Southern Wisconsin, fruited eight years. Fruit large, fine, red, more oblong than its parent, a good grower, very hardy and very productive; of much finer grain, more juicy and a much better keeper than the Bailey Sweet; quality best. Keeps through winter."

THE BRIGHTON GRAPE.—The grape referred to below by a correspondent is probably the Brighton. It is a really good table grape. The varieties of grapes are so numerous that it is not easy just now to name "the best." "I would like to know if the New Brighton grape is as fine a table grape as the originator claims, and

Aphis is destroying our apple crop, which promised one of the largest ever had in Oregon. The ends of the limbs and leaves are, not figuratively, but literally covered with the pest. Last year they were on the younger trees; this year young and old alike are covered by thousands and millions of them. In their first stage they are green, afterward many black ones with wings are seen, and on a sunny day a misty cloud of these latter floats through the orchard. The leaves of the part covered curl up, and the young fruit falls. Hardly any but apple trees as yet are infested, and so far this green fly is confined to the timber part of the valley; in the prairies, thirty

or forty miles from here, they have not made their appearance yet.

For three or four years back we had the bark louse, that threatened destruction to our fine orchards, of which Oregon was so justly proud; but they have mostly left. Washing the trunks and limbs as far as possible with lime and salt was found to be a good remedy. And now comes the Aphis. Will our orchards have the common fate of those of the older States? Is the glory of them departed? Is our pride in, and the admiration of strangers of our large and beautiful red apples gone from us? It almost looks so. We have plenty of virgin soil for new orchards, and yet we have not the apples of former years. Nurserymen, too, complain that the trees in the nursery will not make the growth of three or four feet the first year, as of old. Fresh imported stock and scions have done some better. It would almost seem soil and climate had been exhausted by the enormous crops of our young orchards.

Now, we would propound the following questions:

1. What produces the Aphis?
2. What remedy can be applied to a large orchard of say fifty acres? Strong tobacco juice has been tried; it kills, but the fly comes again in a few days. The eggs don't seem to be affected by the application.
3. How long will this pest probably last? Will they run out with this year's over-population?
4. When is the best time to apply a cure against them?

Mr. Editor, can you answer these questions? Can you throw any light to us, and probably to others, on this very important subject? Orchard ing is with many here in Oregon their sole occupation, and a break in this is a serious matter with them, hence the solicitation.

HENRY MILLER."

Portland, Oregon, June, 1880.

THE PARNELL PEACH.—J. H. P., West Point, Ga., writes: "I send you to-day a present of one small crate of a new variety of peach, originated by me here, and called the Parnell last Saturday by the Atlanta, Ga., Pomological Society at their last meeting. They pronounced it by vote a valuable acquisition. It comes in at the same time or earlier than Hale's Early; it is a freestone peach, of fine color, and does not rot. I would be much obliged if you would give it an editorial in your August number. The box is marked prepaid, so please send the account to me if

there are any charges on it, as I lost a very valuable specimen last year when you refused to take the box of peaches, and they were paid before they left here."

[These peaches weighed two ounces, were of a dark rose color, very juicy, excellent flavor, and with a very small, quite free stone, and were examined July 7th. It seems to us to be a very promising early variety, so far as one may judge from fruit alone.

It may be proper here to repeat what we have so often said, that any one sending packages to the editor should address them "Thomas Meehan, Germantown, Phila., Pa. Paid through." We have scarcely had a case where the box was not marked "paid through" that the Adams' Express Company has not insisted that the package was wholly unpaid, or only in part paid. On the particular parcel referred to by J. H. P., \$1.60 was demanded. No doubt our correspondents would be all willing to pay all over again if we would receive the parcels and "send them the accounts;" but the trouble and seeming "smallness" of writing to say that "you owe me a quarter," and so on, is too much for our time and self-respect, especially when all this may be avoided by writing on the box "paid to destination," when pre-paying it. We must adhere to our rule to refuse all packages on which payment is demanded.—Ed. G. M.]

FRUIT CULTURE IN ALABAMA.—A correspondent from Mobile says: "I do not see why some of the people of Philadelphia do not settle on some of our railroad lands. We have a healthy climate, remarkably favorable natural advantages for fruit growing, and land as cheap and good as can be obtained anywhere in the Union."

BOWERS' EARLY PEACH.—M. & M., Frederick, Maryland, July 12th, write: "We send you this morning a small box of Bowers' early peaches for inspection; could have sent you some a week ago, but not perfect specimens. They are from three to five days ahead of Alexander and Amsden, growing alongside of them, and nearly as much ahead of Wilder; the only one of Mr. Engle's peaches that fruited for us this season. In size they are larger than Amsden and Wilder, and about the same as Alexander, which they resemble very much in appearance. In quality we leave you to judge of their respective merits."

[Like most of this class these were sub-clings, weight 3 ounces, circumference 7 inches, juicy and excellent.—Ed. G. M.]

A LARGE WATERMELON.—A Texas paper records a watermelon on exhibition weighing 60 pounds.

MARKET GARDENING.—An "English Gardener," La Fayette, Ind., writes: "On page 162, June number, Mr. Henderson, in speaking of the progress of this country and in England, states things that are not facts. It may be simple to take notice of such small things, but in justice to myself and country I may say a word. A florist in this country cannot know everything about gardening in England. Mr. H. said, that in 1872, John Bull had not found out how to plow and pulverize. I will say that John knew how to plow and pulverize before Columbus discovered America, better than Americans do now. There are many reasons why market gardeners in England do not plow. Their ground in spring is too wet and cold. Sometimes the ground is very stony, which throws the plow out; and then they do not want to get on the ground with heavy horses in wet weather to tighten the bottom when labor is so cheap. Men only get \$3.50 per acre, and dig an acre in five days thirteen inches deep, and they do not spade it. It is done with a spud, a three-forked spud. I would laugh to see one of your so-called plows in a market garden over the Rhine; it would do no more good than turning in three or four hogs. Another article or two on firming the soil and splitting the barks of trees. Mr. Henderson has not long found that out. He has been longer finding that out than the Irishman was the red spider, whom he had twelve years in his employ. Any child might know that seeds and plants want something more than wind and water to live on. Mr. Henderson has done good service in many ways; but he might remember that there may be many good reasons for practices in other countries, though to him they may seem absurd in this. Excuse my intrusion. It is my first attempt at writing for a magazine, but I really think I know something about market gardening, and finding my views differ from Mr. Henderson's, I make bold to express my dissent."

THE ENGLISH SPARROW.—F. L., Cincinnati, O., writes: "Will you please answer in the GARDENER'S MONTHLY, briefly, whether the English sparrow is graminivorous or insectivorous? So much is said in the papers on either side that one knows not what to believe." [Briefly—both.—Ed. G. M.]

THE KREIGH RASPBERRY.—K. writes: "I send you by express, prepaid, a box of my new seedling Raspberry, of which, perhaps, you will remember Mr. F. Merceron saying something about at Bethlehem last winter. What I claim for it is fair size, nearly as large as Herstine, productiveness, hardiness, excellent quality and firmness; of some of these qualities you will be able to judge for yourself. It has been perfectly hardy the past two winters, while the Herstine alongside of it has frozen to the ground. If it should still continue to prove hardy, I think it will be a great acquisition, if for no other reason, as all the other large and good varieties that I know anything about, winter-kill with us. The Turner is hardy, but not so large nor productive as this."

Strawberry crop very short on account of the drought and frost."

[The relative value of a new seedling Raspberry, in this period of numerous new varieties, cannot be told by a box of fruit in an editor's office; we can only say that the fruit sent were fair, average fruit in every respect. In weight eight of them made half an ounce.—Ed. G. M.]

THE SCHUMAKER PEACH.—C. & B., Erie, Pa., writes: "We send you three specimens, the best we can get, at this late date. They began ripening July 12th, this year, ten days before the Alexander. The tree was loaded with about two bushels, and has borne every year. Tell us all you can of our seedling. This is not much of a Peach section, but we feel that we have a Peach that combines quality, earliness, (best specimens this year 9 inches around) free from rot, hang on tree and prolific bearer. No Peach in our market, from Baltimore to Cincinnati, that compares with the Schumaker."

[The specimens impressed us much more favorably than many samples we receive for opinion. They came early in July, measured 7 inches in circumference, were deep red all over, with an occasional purplish stripe; flesh, white and remarkably sweet and juicy. It is a sub-cling stone, as so many early ones are. A peculiarity is the remarkably small stone for so large a Peach, and which will make it just the thing for some who poke "natural stones" on the public at double ordinary prices, "for you know a seedling Peach has always a small stone." This had the stone two-thirds of an inch long by half an inch wide.—Ed. G. M.]

FORESTRY.

CUMMUNICATIONS.

FORESTRY IN NORTH AMERICA.

The Pertinent Laws and Regulations, and the Future of North American Forests.

BY JOHN BOOTH, KLEIN FLOTTBECK, GERMANY.

Translated for the GARDENER'S MONTHLY by G. W. DE B.

From time to time, we hear through the public press of "enormous" forests, of "enormous" forest fires, and of "enormous" damages done to forests in North America; occasionally we are even favored with rather exhaustive particulars. However loud the complaints may have been, and ever so condemnatory, very soon the idea that these forests are "inexhaustible" will again come to the foreground, supported by a mass of desultory and unreliable reports, false statistics, so-called popular essays, and other interesting articles. The following attempt to give a picture of the actual situation and the probable future of the American Continent, which, in a great measure, depends on the preservation and rational development of its forest land, will therefore hardly be out of place. The incompleteness of our work will be the more readily excused, as many of the incidental questions remain unsolved even by the competent authorities in America, whose judgment must necessarily be incomplete as long as the larger part of this extensive forest land has never even been surveyed. Nevertheless, we shall be able to give a reliable, if not an exhaustive description of the general condition; as some of the first authorities on forestry in the United States and Canada have furnished us much valuable material by special correspondence as well as through their own publications.

With few exceptions, American forest trees stand the European climate well; many of them prove valuable material for various trades and industries, more profitable even than the indigenous species; and the future of American forestry is of particular interest to us, as a great many of the better woods at present manufactured in Europe came from North America. Our own imports, as well as our exports to other countries, would be materially affected by a notable decrease of American exports!

When in the seventeenth century Europeans, principally Englishmen, began emigrating to North America, the extent and magnificence of its forests, which until then the foot of man had but seldom penetrated, very naturally originated the idea of their being inexhaustible, and the most inestimable waste no doubt began almost with the first settlers. In 1681, William Penn issued an ordinance decreeing that for every five acres cut down, one acre of woodland must remain untouched, and that principally oaks and mulberry trees, so indispensable to ship-building and silk-culture, must be spared. Again, in 1693, a commission of three was appointed to investigate the damage suffered by the citizens of Breucklyn (now Brooklyn) by the unauthorized felling of some of the very best and largest trees in their forests. Both laws seem, however, to have remained dead letters, and it is not likely that the unruly times of the eighteenth century left the American Colonies much time for the consideration of questions like those relating to forestry.

Soon after the Colonies had achieved their independence, we find a law passed by Congress, reserving certain woodland, grown with ship-timber for the United States navy. The general situation was, however, hardly effected by this law, for as late as 1817 the timber land thus reserved was but twenty square miles. A number of laws from 1820 to 1840 regulated the sale of government land, in which no distinction was made between most valuable woodland and arid plains, because in most cases the government was not even informed to which of the two classes the land sold belonged. The price, according to the "Report upon Forestry," was fixed at an average of \$1.25 per acre, and the purchaser bound himself to cultivate a certain portion of the land, in consideration whereof, he was given a thirty-three months' credit for the purchase money. The large speculators, however, only cared for the timber, cut down whatever they could, and mostly disappeared long before the end of these thirty-three months, in many cases without as much as paying the miserable \$1.25 per acre. To cover their wanton depredations these speculators very often inaugurated a forest fire before they left, which caused even larger damages than the thefts it

was to cover. Until 1854, a system of "timber agencies," under the authority of the Treasury Department, existed; after the dissolution of these, local "Government Law-Districts" were organized, with a special department for everything relating to forestry, and the whole Bureau was transferred to the Department of the Interior. The evils were nowise abated by this transfer, and now many districts are being robbed with impunity of their timber. Whenever a particularly glaring case does get investigated, it is invariably compromised for a purely nominal sum, as no one is found to outbid the cheeky speculators. From 1868 to 1872 all the government received from such prosecutions amounted to \$150,000, while the actual value of the stolen timber was at least some twenty or thirty million dollars. All the reports on forestry from 1870 to 1880 speak of the increasing waste and lawlessness in regard to the felling of timber, and many eminent authorities have expressed doubts as to whether it were altogether possible to remedy the existing situation by laws. Instead of laying high penalties on every case in which a conviction was reached, the Secretary of the Interior, in 1877, abrogated the Government Land Agents, in whose place "special agents" were from time to time to be sent by the Department, which agents were to inquire into all timber depredations and report to the Secretary. The attacks on Mr. Secretary Schurz by the "timber ring" in consequence of these orders were very bitter, and he was at one time in danger of losing his position in the Cabinet. In his report to the President, of 1877, the Secretary of the Interior says: "The amount of timber stolen from Government lands is enormous, much more so than is generally believed. The stealing of timber has grown to be a regularly and systematically organized business, and the speedy denudation of the country must fill every truly patriotic citizen with deep anxiety."

That is "free America!" Only no hindrance to "individual" liberty; no matter if for centuries to come, he lay waste whole districts by his thoroughly organized depredations! Would it not be better and more rational, as well as more just, if the timber thieves were treated like horse thieves, and were lynched whenever detected *in flagranti*?

The impotence of the general Government to oppose these abuses is evident, and the petition of some of the Legislatures to Congress to transfer the supervision of Government lands

to the single States, seems quite in order. The memorial of the State of Colorado is particularly clear and pointed. It emphasizes the fact that the general Government has repeatedly declared itself powerless to remedy the evils complained of; that the wholesale thefts of timber, and the forest fires, which often last for months, if continued to the same extent would in less than a quarter of a century entirely destroy the woodland of the State; and that already the climate, soil and agriculture of Colorado have greatly suffered under the wanton destruction of her forests. A similar memorial from the "Board of Agriculture," of Maine (1869) contains, after minutely describing the wholesale devastations and their evil consequences, the remarkable words: "Are we to learn from such occurrences and facts, that only monarchies are capable of protecting these treasures of nature? And is it really impossible for a republic to protect her soil enough to conserve it for posterity?"

(To be continued.)

EDITORIAL NOTES.

AMERICAN FORESTS IN EUROPE.—It is remarkable that while those who are writing about American Forestry, do little to tell us of forestry in our own land, a distinguished European has written a work specially on American Forestry. It gives such an excellent history, that we have had it translated for American readers.

The name of Booth is so familiar to Americans in connection with the celebrated Flottbeck Nurseries at Hamburg, that we need only say that Mr. John Booth, the author of this work, has been for many years the senior partner in the old firm of James Booth & Sons. As a botanist and a man of general science, he has given his nurseries an enviable character for accuracy among the establishments of Europe. His interest in forestry is so well known, that on many occasions he has been chosen by the German government to be its representative in several international forestry conventions. These facts alone will make it of interest to learn what such a man knows of us.

TEA CULTURE IN THE UNITED STATES.—That the Tea plant is hardy in any of the States south of the Potomac, has been known for a century at least. As frequently stated in this magazine, the only question involved is whether it can be prepared here as cheaply or as good as in China.

It is a matter wholly for intelligent experiments, with the chances in favor of success. Whatever has been attempted in this country in the past has unfortunately not been done intelligently. At the outset Mr. Fortune was sent to China for seed, without any definite idea of what was to be done with the plants. These were scattered "promiscuously" as the negro preacher said, and perhaps most of them might as well have been thrown away at once. On the farm of Mr. Craven, in Liberty County, Georgia, several hundred of these plants got through alive, and are now about fifteen feet high. The farm has been purchased recently by a Mr. Jackson, a British subject, who has spent fifteen years among the tea planting regions of India, who is so full of faith that it can be made a success, that he set out the past spring a great number, and now has 100,000 plants under culture.

There is little in this beyond what we have known before. We knew that the soil and climate is well suited to tea culture, and the novelty is that a foreign gentleman has become enthused over these facts. Unfortunately we all know how many are the little elements which go to make up success, and which enthusiasts from abroad find only after a few years of experience. We must not dare much hope of success on this enthusiastic venture, however much we may wish for it.

To us the greatest difficulty seems to be in the

great difference between the cheap labor of India and China, and our own; and then the profits would be like the growth of the tea plant itself, too slow for the majority of American capitalists.

The value of the pound of tea to the acre for the first five or ten years, would probably be very slim in comparison with what a corn crop would produce. If Mr. Jackson or any other gentleman can work out the figures well, he will be one of the Nation's great benefactors.

DURATION OF TIMBER.—We give in another column a sensible article on Catalpa posts. It shows that what we have said about the variable nature of the same kind of timber, deserves close attention. There is no doubt but the duration of timber depends on a host of circumstances that are rarely noted. Timber from a mature tree, or from a very young tree, is not likely to last as long as timber from a lusty middle aged tree. The season when cut makes a great difference. And again the circumstances surrounding the post has much to do with durability. Not long since the writer asked the foreman of a lot of track layers how long the white oak railroad sills lasted, he replied, "on this embankment not more than five or six years, but there in that cut, where the earth is damp and cool, they will last twenty or twenty-five years."

There is in fact no question in which circumstances alter cases so much, as in the duration of posts and exposed timber.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

FERTILIZATION OF YUCCA.

BY DANIEL WITTER, DENVER, COL.

Noticing what you said in the last GARDENER'S MONTHLY about the fertilization of the Yucca, I thought you might be interested in knowing that I have gathered seeds of *angustifolia* for three years past. Last year and the year before, I only found it producing seed at one place, on Bear Creek. I have before found it in bloom upon the high plains. I have attributed my failure to find it there the past two years to the dryness of the seasons, and that where I have found it the roots penetrate through the sandy soil upon which

it grows into the decaying rock beneath, where there is always considerable moisture, and, I should think proper nourishment for such plants.

As to the *Pronumba yuccasella*, I have invariably found a great portion of the seed destroyed by some worm eating through the centre of them, and I have noticed the holes where it eats into or out of the pods, but I have never seen the insect, nor do I remember now whether or not every pod was more or less eaten, but that is my impression now. I think, however, that sometimes only one or two of the cells would be eaten out, sometimes wholly and sometimes only partially, leaving in some pods most of the seed good, and in others only a few.

I had the opportunity last summer, in excavating for our new city water works, of seeing just how some of those plants which grew so luxuriantly on our parched plains, get their nourishment. I found *Yucca angustifolia* and *Ipomoea leptophylla* invariably sending their roots down through the soil of clay and loam, through the sub-soil of sand and into the decaying rock beneath, where they evidently obtain the nutriment necessary to their growth. This rock along the line of our works (over three miles in length) was generally found at a depth of from three to five feet, and was quite decomposed on top, so that there was no difficulty in plowing it to the depth of from one to three feet; and in this rotten bed-rock I found the fibrous roots spreading out and penetrating to the depth of from one to two feet.

PICKWEED.

BY H. E. CHITTY, PATERSON, N. J.

In the August number of GARDENER'S MONTHLY, just come to hand, I read your extract from the *Philadelphia Public Ledger* of some people being poisoned by *Stramonium* which was gathered, prepared and dressed, supposing the same to be the New England Pickweed. Then you ask for information regarding the New England Pickweed. The plant in question, in my opinion, refers to the Skoke or Poke weed, which are common New England names for the *Phytolacca decandra*. But, although my residence in New England was somewhat protracted, I do not remember having heard the name Pickweed applied to this plant before. In New England the young shoots of the Poke weed are considered a very delicate vegetable, and are, during the spring months, always to be found for sale in the markets. The young succulent shoots, when from four to six inches in length, are cut off near the ground, tied in bunches and offered for sale in the same manner as asparagus is sold, and I believe the methods of preparation for the table are pretty much the same as for the latter vegetable.

EDITORIAL NOTES.

DR. TANNER'S FAST.—The difficulty which scientific men find in getting out of beaten lines of examination, too often leads them to neglect opportunities which might have resulted in valuable knowledge. The case of Dr. Tanner is one in point. The celebrated Dr. Hammond was so

sure that Dr. Tanner could not live forty days on water alone, that he neglected his chance. The natural phenomena accompanying such a case could not but have been peculiar, and in the hands of an unprejudiced and able physiologist could not but have been immensely valuable. And the newspapers are all asking what is the good of the Tanner experiment, and treating it as so much effort wasted. But even as the facts have been given by the papers, they show that where there is any danger of starvation it is much more important to provide security for water than for food, although, of course, all food contains some water, and one with food can live for a long time without water in a liquid form.

But there is a remarkable fact in the Tanner experiment which bears on the whole theory of nutrition in animals and in plants, which it is too bad should have been passed over by physiologists. From the 17th to 19th day of his fast there was an increase in his weight over and above the weight of the water which he had taken. Now we know that plant life takes in carbonaceous matter from the atmosphere, and that animal life cannot. We do not admit of any exception to the rule, unless, perhaps, in the organisms on the dividing line between the animal and vegetable class. But how do we know that there may not be some exceptions? This result in Tanner's case shows it to be probable; at least the idea would have suggested itself to a judicious scientific examiner. That this view is not wholly ridiculous is shown by the result of the first day of eating after the fast. He weighed 121½ pounds when the fast was concluded. In six hours his weight had increased to 130 pounds, and judging by the newspaper statements, though eating and drinking fairly he had not taken this additional weight of food. Now, if these are the exact facts, it can only be that under some circumstances animal life, in its higher form, can assume the functions of vegetable life, and derive carbon and other matter from the atmosphere in some small degree, and if this fact could have been demonstrated beyond doubt, there is no telling in how many ways the principle might have been made to work to the advantage of human kind.

It is perhaps natural that scientific men should hesitate about being thought to sympathize with humbug or childishness, and no doubt even Franklin went kite flying with some hesitation lest he should be thought to be doing a childish thing.

AN ENGLISH HEATH WILD IN NANTUCKET.—A small patch of the beautiful *Erica cineria* has maintained itself in a wild condition for a number of years near Nantucket. Its history is unknown. It was first noticed by a New York lady in 1865, and still noticed in a flourishing condition by the same lady in 1879. We have a fresh specimen from another correspondent now before us.

FOWL MEADOW GRASS.—Professor Beal, in the *Rural New Yorker*, identifies this with *Poa serotina*, and states that its common name is derived from a belief that it was first introduced to the meadows of Dedham, Mass., by means of wild fowl.

PICKWEED.—The *Chenopodium* of England, referred to in our last is Pig and not "Pick" weed, and the *Hepatica* is Liverwort, and not "Silverwort." Our proof reader is a very good fellow, and our last issue proves this, seeing he did not have the usual advantage of a final looking over by the editor, who was then in North Carolina.

SCRAPS AND QUERIES.

CHANGE IN A ROSE.—N. G. W., New Albany, Ind., says: "A friend of mine has a white rose that sent a young shoot with leaves on it from the center of one of the blooms.

How can this be explained?"

[The flower of a rose was predestined to be a branch. The petals of a rose might have been leaves. It may be described as an after-thought of nature to make a rose flower (or any flower, out of what should have been a leafy branch or shoot. Now sometimes nature is fickle, and in this case she was. After starting to make a branch, she concluded to make a rose flower; but before the rose flower was quite finished, she changed her mind again, and let the original branch grow.

It is such facts as these which give strength to what is known in botany as the science of morphology.—Ed. G. M.]

VITIS INCISA.—D. W. L., says: "Please inform me whether the *Vitis (cissus) incisa* of Nuttall is or is not the same as *Ampelopsis incisa* of catalogues."

[They are the same. The lines between the genera are not very definite. One may call them whichever they like without badly violating botanical rules. *Vitis incisa* is the original name,

by Nuttall; but its affinities are nearer to *Ampelopsis* than to the ordinary grape-vine.—Ed. G. M.]

CHANGE OF CHARACTER IN A FRUIT TREE.—Miss J. K., Columbus, O., writes: "Do trees which have for years borne fruit, that is free-stone, ever change their nature and bear mostly clings?"

Let me state my case. In 1862 my father, (John H. Klippart), planted an Apricot tree, which was then probably three feet high. The next year some boys, in jumping over the fence, jumped upon the young tree and broke it off about six inches above the ground. Five young shoots pushed out and all were left on. In the course of several years it commenced bearing fruit, which were (very) free-stones. It continued bearing free-stone fruit until about six or seven years ago, when it changed and bore clings only; just about the same time we noticed that the tree had been attacked by the borer. In Oct. 1878, (just after my father's death), we cut down one of the main branches, as the tree was making too much shade. In 1879 the tree had no fruit at all. This year the tree was laden down with fruit. The first to ripen were decided clings; when about two-thirds of the fruit was off, part of the remainder changed to free-stones on that side of the apricot next to the sun, and clings on the other side; and the last to ripen were true free-stones. Now has the borer had anything to do with the change, or is it old age?

If I wish to raise a young tree, had I better raise it by cuttings, seed, or bud it on some other stock. Our apricot tree is 51 inches in circumference eight inches above the ground, and is about 30 feet high."

[We do not understand this case. So far as we know all apricots are free-stones; and we suppose the apricot was grafted on a peach stock, and when the apricot was broken off, the peach sprouts came up, and it is probably of these our correspondent is speaking, using inadvertently the word "apricot" when peach should have been employed. If this is the correct rendering, we may say that it is not unusual for freestone peaches to become under some circumstances, partial clings, though we never knew of a case where it was very much so. If Miss K. really means that the apricot became a cling-stone, it is indeed a case very well worth recording, though we cannot guess at the cause.

To raise a tree from this one, bud it on a peach or plum stock.—Ed. G. M.]

FREEZING THE SAP.—Geo. W. D., Kent, O., writes: "I was much interested in what was said in your valuable MONTHLY in regard to foliation and heat, but was, I confess, startled by your statement that the sap is never frozen in the living cells without killing, those cells dying afterwards. I grant that if the cells and ducts were full of sap, this would be the result, but I believe the truth of the matter to be that when the tree is in its dormant state they are not full, and in this state what moisture remains can be, and is frozen without bursting the cells and without injury to the tree. I have noticed that in very cold weather the young shoots of trees are smaller, and that the thin outer bark is wrinkled in consequence of the shrinkage."

[The observation of our correspondent is quite correct. Not only do twigs shrivel under severe frost, but the actual girth of a tree is less after a few hours of severe frost than it was before. In experiments made by the writer of this, there has been as much as a quarter of an inch shrinkage in a luxuriant silver maple tree about three feet round before the thermometer fell to near zero. Now if the sap froze the trunk would expand and not shrink. It should not be forgotten that when moisture is in a finely divided condition it does not "freeze." The atmosphere in winter is often full of moisture, though the thermometer may be at zero, and moisture in trees is so constituted that it does not freeze under low temperatures, but evaporates through the tissues, and the branches shrink just as our correspondent has noticed. Some trees or plants have not this power. A geranium has not. Its sap does freeze, and the plant is killed; but when trees die in winter, that do not have their sap freeze, they die because the branches dry up. The sap does not freeze, it evaporates.—Ed. G. M.]

HONEY DEW.—D. S., Newburgh, N. Y., writes: "I trust you will pardon me for asking of you some information in relation to what is usually called Honey Dew."

From my boyhood I have noticed that at certain seasons of the year, usually about the middle or latter part of June, the leaves of certain of the forest and fruit trees were covered with a viscid saccharine substance, not very unlike honey in substance and taste, hence for want of a better name, the farmers gave it that of honey dew. By informing the readers of your valuable magazine what this substance is, and how it is

produced, you will confer a favor and satisfy many an anxious mind. If as Chambers asserts in his Encyclopædia, under the head of Honey Dew, it is an exudation from the leaves, how shall we account for its being found only on certain kinds of trees, and also in greater quantities on some than other years. From observation I have learned that at times it has been found on the Oak, Chestnut, Elm, Cherry, &c.; and this year, I am reliably informed, it was found in equal quantity covering the share of a plow that had been left exposed on the surface of the ground over night, not far from an elm that was covered with it, the wood portion of the plow showing no indication of its presence. Some to whom the matter has been referred, insist it is an animalcule, but give no satisfactory reason for its appearance. Others with far less reason assert that it is produced by the aphides that are often found apparently feeding on it.

Thus you see the dilemma that we are in; can you extricate us from it?"

[Honey dew is a secretion from the foliage, resulting from the change of starchy matter which always exists in the leaves of plants, into saccharine. Sometimes it is produced in such abundance as to fall to the ground; and we know of no reason why it might not be on the wood as well as the iron of a plow, except that it did not happen to fall on the wood,—or the wood might have absorbed the liquid. We could not give the "why" of this question, unless we examined the case ourselves.

Why honey dew only appears on certain trees, or in greater quantities or none at all some years than others, must be answered pretty much as one would answer a question why some people had dropsy or none at all. The production is abnormal, and depends wholly on unusual circumstances for its production. Very little is known of the precise way in which the honey dew is brought about. Perhaps if those who had the opportunity to observe had not, as they have concluded,—aphides always at the root of it,—we might know more than we do.—Ed. G. M.]

WAX-WORT.—J. D. H., Peacedale, R. I., writes: "On the rocky hills of Salem, Mass., I observed effects of golden flowers that almost rivaled the famous Gorse of Great Britain. Upon inquiry, I found it was called Wax-wort, that is said to have been imported from England long ago, and having spread from gardens into fields as a great foe of farmers, and an almost inexhaustible one.

I did not see it, however, where I thought it could do much harm, its choice seeming to be where half the surface is rock (out-crop of granite, I think), and the rest not worth much. I saw none in tilled ground, or ground that appeared to have been ever tilled. Upon going to see what it was I found the plant to be what I

should call 'broom,' though different from any other I ever saw. Herbaceous, I think, but with perennial root, and spreading therefrom—as it appeared to be in patches only—little if any isolated plant. It runs about 2 feet high."

[The plant referred to is probably *Genista tinctoria*.—Ed. G. M.]

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 16.

BY JACQUES.

Galvanized wire may do great injury to climbing plants. Make a note of this.

Terra Cotta. There is a story going the rounds of an ignorant traveler, who in reading exhibition catalogues, asked who was Terra Cotta. Quite as bad is the case which a staid monthly asks: Who was Robin that sued Acacia? The too little cultivated and beautiful tree *Robinia Pseud-Acacia* had been discussed.

Our goodly heritage. The *International Review* says the crops of cotton of 1878 and 1879 were the largest ever raised. The ten crops of 1852 to 1861, inclusive, being the last crops raised by slave labor, 34,995,440 bales. The ten crops of 1870 to 1879, inclusive, being the last ten crops raised by free labor, numbered 41,454,743 bales. It will surprise many to find that only about nine per cent. of our total grain product is exported. * * Until 1870 it was the opinion of railroad men that they could not profitably engage in the transportation of grain from Chicago to New York at a lower rate than forty cents per hundred pounds, or twenty-four cents per bushel. During 1879 grain has been shipped from Chicago to Liverpool for seventeen cents a bushel, a rate but little greater than that which prevailed between Buffalo and New York by canal ten years ago.

A *Florida correspondent* believes the Algerians of the interior are not Turks, as they lost that title some years ago. We may give it up, but would ask the writer if he believes the inhabitants of Alsace and Lorraine have renounced their religion and turned Protestants because of

annexation? We agree they should be called Mahometans. As to the silk-hatching on women's bodies, we make no objection, but fear it is attended by a bad odor.

Bee and other Culture.—The account of the vast product of bee culture in the United States in the December Notes and Queries has excited some astonishment. That thirty-five millions of pounds of honey and wax should constitute the annual product, and that one firm of grocers keeps as many as 12,000 swarms is truly astonishing. The assistance given to the bees by making artificial preparation for lightening their manufacture of wax is interesting and curious. The whole story is characteristic of American enterprise, and system is shown to result in success. There are many other plans pursued with success by quiet industry. Northern men have successfully planted Florida with orange groves; a firm with which we correspond lands during the season an immense number of boxes of the finest oranges produced by their agents, and finds each box bringing a five-dollar note, with a profit in expectation greatly increased as the trees grow older. Sweet things are in demand, and so is every useful and nutritious thing. A market like that of the whole of America for any article, however small, is a great market, and a vast army of producers who have laid a sure foundation for desirable articles may be said to sit at home at ease while reaping the results of thought, and employing bees and men to do their bidding. They say to one, "Go, and he goeth," but he returns to the master minds laden with produce. Such we like to record, whether it be the extension of the product of the field, the loom, or cultivation. We have already stated that mushrooms are to be, and even are, successfully grown as an article of food,

taking the place of meat, which they resemble in nourishment, with added enjoyment of high flavor.

In California, fruit-raising is very lucrative, and men have found the almond more than likely to become a national product; while the grape, taking the place of the great European decline, is taking its place as a wine producer much more rapidly than most persons believe. There are many industries of greater or less value which Notes and Queries will, from time to time, mention as practicable.

Of late introductions, the *Weigelia* alone seems to hold its own, but the *Desfontania spinosa*, looking like a holly, but throwing scarlet and yellow tubes of blossom, or the *Diplopopsus* with its leaves like a variegated thyme, and its flowers like a minute-aster, are too rarely seen.—*London Quarterly Review*.

The old China pink, or monthly rose, deserves a bed to itself. It should be pegged down, and the blue lobelia should be planted between. No rose, taking all the good qualities of a rose together, will surpass the Gloire de Dijon, though golden cups of Marshal Niel may be richer in color, and the fragrance of La France recalls as no other rose does, the luxurious fragrance of Oriental otto of roses.—*Ibid*.

Remember that the Marshal is improved in color, especially by budding on Lady Banks. The most striking successes among hybrids have been among roses, clematis, begonias, and rhododendrons.

One single florist in the neighborhood of London sends to market annually more than 80,000 plants of one description of pelargonium alone. It is calculated that the bedding out of a single good sized garden will take at least 100,000 plants to make it effective.—*London Quarterly Review*.

A Mr. Burbridge tells us that the value of flower roots sent from Holland a year or two ago was nearly £60,000, and one English grower imports annually 160,000 tulip bulbs.—*Ibid*.

Besides the spring garden, there is in some places the semi-tropical garden, and in others the Alpine garden. No one has done more than has Mr. W. Robinson to call up the chief ornament in the gardens of Paris, and in the delicate tufts of flowers which nestle in the crevices of our rockeries. But there is much still to be done.—*Ibid*.

Why do the climbing plants climb at all, and

why do some twine and others cling? Why do the fly-catching plants cause the death of numbers of unlucky insects? Why are the stamens and pistils of plants of such various lengths and sizes? Why have some flowers a hairy fringe, and others drops of nectar in their calyces? What is the meaning of the scent of flowers? The key to many of these questions is in the relationship of flowers to insects; and Charles Darwin, Sir John Lubbock, and others, have done much to explore and then popularize the subject.

The "dressing" of flowers of particular blooms has recently become an art, and little curling irons are employed to get petals into their proper shape, and various other devices are used for various flowers.

EDITORIAL NOTES.

PROGRESS OF THE TOWN OF GREELEY.—The writer of this saw the town of Greeley eighteen months after it was founded by N. C. Meeker, R. A. Cameron and Horace Greeley, and was favorably impressed with its prospective success. At the foot of the Rocky Mountains, in a rainless country, the founders looked to irrigation of the soil by mountain streams for its agricultural prosperity, just as the Plains of Lombardy had become a success in the old world. The little town has now passed its tenth year, and has become as great a success as the most sanguine could have dreamed. It now has two newspapers and a great variety of flourishing industries. It is in some sense a great city. The *Greeley (Col.) Tribune* has recently issued a supplement, giving a concise and illustrated account of its progress.

THE ARBORICULTURAL CENSUS.—Western papers keep us posted of the movements of Prof. Sargent and his associates, Dr. Engelmann, Dr. Parry and Mr. Sereno Watson. In the first part of his journey he was accompanied through Colorado by Robert Douglass. From all accounts an immense amount of valuable facts have been recorded.

THE LATE ROBERT BUIST.—For the first time since his accident, Hon. M. P. Wilder visited the rooms of the Massachusetts Horticultural Society at its August meeting expressly to do honor to the memory of Mr. Buist. He paid an eloquent tribute to his worth, and was followed by W. C. Strong, Robert Manning and President Hayes, after which appropriate resolutions.

In our last issue we expressed the intention of reverting again to the decease of our friend; but the immense influence which Mr. Buist has had in the great progress of American Horticulture demands no ordinary tribute; at least more than a hasty magazine paragraph will give the opportunity to do, and we have therefore thought best to defer yet a little while what we desire to say of him.

A GARDEN IN NEW BRUNSWICK.—It is the season of roses at Fredericton, and this year the crop appears to be very fine. In this respect the garden of Mr. Alfred Ray is probably unequalled. Indeed, his rose garden is a garden of itself. It contains two thousand rose trees, and on Thursday last there were thousands of roses in bloom, of the finest kinds, presenting a most remarkable sight, and one which could not be surpassed in any climate. Mr. Ray has the grounds formerly owned by the late Judge Wilmot. The Judge kept them in beautiful condition, but Mr. Ray has enlarged and otherwise improved them. He has cut down a good deal of the shrubbery, and has devoted more space to blooming flowers. His tropical garden, which is protected by a fine grove of pines, is very handsome; palms, tree ferns, and equatorial grasses are tastefully dispersed through it; tempting looking orange trees laden with oranges are placed in attractive positions, handsome aloes abound, and altogether this portion of his grounds is a scene of rare beauty. Fredericton is to be congratulated on having a gentleman of Mr. Ray's taste within her bounds.

MAHLON MOON.—Among the deaths of the past month we are sorry to note that of Mahlon Moon, nurseryman of Morrisville, near Philadelphia. Mahlon Moon was a member of the Society of Friends, and always had a warm love for plants and flowers and general rural life. The nursery business was an outgrowth of this love, and his establishment became quite famous for rare plants. Advanced in life, he had the satisfaction of seeing his tastes worthily inherited by his son, and has not labored much in business recently. He fell dead instantly while taking a quiet walk on the piazza of his dwelling house.

D. WALDO LINCOLN.—We notice by a brief line in an exchange that among those recently deceased is D. W. Lincoln, Esq., of Worcester, Mass., well-known as an eminent patron of horticulture in times past. He was, we believe, the

next after Mr. Caleb Cope to undertake the culture of the Victoria Lily in this country, J. Fiske Allen, of Salem, being the third.

M. B. BATEHAM.—As we are sending our matter to press we have news of the death of Mr. Bateham, on the 5th of August, in his sixty-seventh year. Although born in England he was educated in America, and started in early life as a seedsman, and with a great fondness for literary pursuits. The earliest acquaintance of the writer with Mr. Bateham was as editor of the *Ohio Cultivator*, and he can bear testimony to effective zeal with which he devoted his pen to the service of agriculture and pomology during the past thirty years.

The American Pomological Society, the Ohio Pomological and Ohio Horticultural Societies had in him an original supporter, if not indeed in many respects an originator. Though tall and well-built, he never appeared to be in robust health, and though he has died comparatively young when we consider the age of many of his associates, the immense amount of useful work he has accomplished is surprising, and he will be long gratefully remembered, especially in Ohio, to the prosperity of which State much of his unselfish work was directed.

C. C. LANGDON.—This gentleman, whose retirement from the nursery business in favor of his son, we have recently noted, has been nominated by one of the political parties in Alabama as a candidate for the Alabama House of Representatives.

THE PATERSON NURSERIES.—The greenhouses of the Greenbrook and Paterson Nurseries, at Paterson, New Jersey, recently took fire, it is believed, by the act of an incendiary, and damaged to the extent of \$15,000.

FLORAL ART IN ENGLAND.—Only recently has an agency for Meehan's Flowers and Ferns been established in London. The agent writes that the first two copies purchased were bought for Queen Victoria and the Prince of Wales.

A NEW WORK ON BOTANY.—A new work on plants as living things, by Prof. Bessey, of Iowa, is announced as in course of publication.

DAIRY FARMING.—By J. R. Sheldon, New York; Cassel, Petter & Galpin. Part 12, just issued, gives the whole history of cheese-making in England. Perhaps, as a matter of profit, English makers cannot compete with American makers; they have many ways of making choice brands that it will profit our people to know all about.

PURDY'S SMALL FRUIT INSTRUCTOR—This little book contains a vast amount of useful information, and must be well worth all it cost to any fruit grower, especially those engaged in marketing fruit. We are, in the preface, told that the work "has been hastily gotten up," and is "not intended for the critic's eye;" and this being so we shall forbear from noting many little weaknesses that occurred to us in looking through it. We may be, however, pardoned for suggesting that we see no particular reason for haste. A few months more of delay in issuing it would have been no harm to the purchaser, and might have made a better work.

SCRAPS AND QUERIES.

GARDENING AND GARDENERS.—If the correspondent whose note called forth the paragraph under this head at page 253, in the August number, will send his exact address to the office, a letter from Raleigh, North Carolina, will be forwarded to him.

NOTES AND QUERIES.—A correspondent says: "That's right! Plug the errors!"

Infusion of Silica for Soup! Confused Catalpas! Pronumba on Yucca filamentosa!

Freezing of the Sap.—'A hundred bottles of water on Boston Common would all split if one did.'—O. K.

A Lover of Pears.—It has been done, can be

done, but is not always done, that is, 'Pears every morning in the year for breakfast. Strike out *pears* and insert **FRUIT**, and it will still hold true.'

Origin of Life.—What a mystery. 'No evidence that any live creature has been produced from anything that had not life before.' So from the beginning, so to the end.

And so another old friend has gone, Robert Buist, a man, who for his long life of devotion to the culture of plants, will be remembered as a benefactor of mankind. I have known him for almost fifty years, and during this long period of time he has kept up with the enterprise and improvements of the age. Few men have exercised such an influence on the floriculture of our country as Mr. R. Buist. But has not only raised and distributed plants throughout our land, but better still, he has educated and raised men of his profession who have been ornaments of society and leaders in the horticulture of our own land. I shall take special notice of him and his services in my next address to the American Pomological Society, of which he was one of the founders, and has been a vice-president for twenty years. All honor to his memory.

Fifty Years an Editor.—How I wish I could have joined in the congratulations to my old friend Major Freas. Honor, renown and long-life to him; to him, the conscientious, steadfast and devoted patron of rural improvement."

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

HUMBUGS IN HORTICULTURE.

ESSAY, BY PETER HENDERSON.

Read at the Annual Meeting of National Association of Nurserymen and Florists, held at Chicago, June 16, 1880.

The life-time experience of any man is too short not to be imposed upon by many of the hundreds of old varieties of Fruits, Flowers, or Vegetables that are sent out annually under new names. Any well-posted nurseryman can easily detect when a Bartlett Pear or a Baldwin Apple appears under a new name; or a Florist, making a specialty of Roses, knows, as when some years ago the old Solfatare Rose was sent out under the name of "Augusta"—claiming it to be hardy in every State of the Union, and sold as a great bargain at \$5.00 a piece—that the vendors thereof were either swindlers or entirely ignorant of the business they had embarked in; or when the con-

fiding market gardener is induced to buy a new and superior Cabbage or Tomato Seed, at \$5.00 an ounce, and finds them identical with the same varieties he can buy at half that price per pound, he has good reason to come to the conclusion, that the man from whom he purchased was either a humbug or else unfitted, from his ignorance, to engage in the business of a seedsman.

But, unfortunately, from the varied nature of these impostures, it is exceedingly difficult to mete out justice to those who, knowingly or otherwise, place such swindles on the horticultural community. For the man who grows fruit trees is as likely to know as little about roses as the man who grows roses is to know about fruit trees, and either is less likely to be posted in the merits of vegetables. So, then, if the partly experienced horticulturist may be imposed upon in such a way, how safe is the field when the

swindler tries his tricks on the general public. The sharp man of the city falls as quickly into the trap of the horticultural swindler as the veriest rustic, because his city experience of the impostures in other matters helps him nothing in this. He may not be much troubled when he sees a bootblack fall off the dock into the river—particularly if his companion plays off the heroic role, and plunges after him, to the rescue—he understands it all, for both can swim like ducks, and there was no more danger for the first than for the second, and none for either. A well-stuffed pocketbook snatched from under his feet is an incident that does not in the least arouse his cupidity, for he has long been conversant with the trick of the pocketbook dropper. The mock auctioneer may scream himself hoarse, offering gold watches at \$5.00 a piece, and it hardly elicits a smile of derision. The tears of the benighted orphan in search of his uncle does not bring a dime from his pocket, for he understands it all, together with a score more of the tricks of the great city. But, in the springtime, when his garden instincts begin to bud, and he sees in some window in Broadway flaming representations of fruits and flowers, he falls into the trap and is ready for the spoiler.

Some years ago I had occasion to act as an amateur detective in one of these Horticultural Swindling Shops, the owners of which are now known in New York as the "Blue Rose Men." When I arrived, there were at least a dozen ladies and gentlemen engaged in buying Seeds, Bulbs, and Plants, the flowers and fruits of which were represented by the pictures on the walls: for example, Asparagus was shown as having shoots as thick as a broom handle, the seeds of which were selling rapidly at one cent a piece, warranted to produce a crop in three months from time of sowing; an old lady had just become the possessor of \$5.00 worth, and seemed delighted with her bargain. One of the most attractive pictures on the wall was an immense colored engraving, showing a tree on which Strawberries were growing, and as big as Oranges. My gaze was attracted to a handsome plate of Blue Moss Roses, of which I modestly asked the price of the plants. The polite Frenchman (who was doing the principal selling for the concern) whisked out from beneath the table three plants representing to be Moss Roses (which, by the way, were all alike and were all our common Prairie Rose), and said, "This one he bloom only once; I tell you the truth, so I sell him for two dollar. This one, he be the Remontant, he bloom twice—just twice—I sell him for three dollar; but this one, he be the everblooming, perpetual Blue Moss Rose, he bloom all the time, he cheap at \$5.00." I quietly remarked, if it bloomed all the time why was it not blooming now?

(To be continued.)

EDITORIAL NOTES.

PORTAGE COUNTY, OHIO, HORTICULTURAL SOCIETY.—Other counties of Ohio seem likely to

contest with the famous Montgomery ones claims to celebrity. Here before us is a report of a creditable beginning. The meeting was held at Ravenna. Strawberries and flowers were the chief attractions. An essay on the Strawberry was read by Mr. Matthew Crawford. What will the advocates of the newer Strawberries say to the following about a very old kind, and which was very famous in its day:

"Burr's New Pine.—I have grown this berry in my own garden without intermission since 1856, and when it has had decent treatment it has always given me a large crop of its delicious fruit. I have had it beside the Wilson nearly the whole time and it has uniformly given me the largest crop of the two—usually twice as much or more as it has this year, and in size it has averaged as large. There is no Strawberry with which I am acquainted that will constantly give as much fruit, with the possible exception of Capt. Jack and Crescent Seedling. It has never been eaten by white grubs that I know of, although Duncan and Prouty by the side of it suffered badly this year as did other varieties near by. It has never been thrown out by frost, and I have never until the past year covered it in winter. In its cultivation there are two requirements that are absolutely necessary to success. It must have a fertilizer (that is a vine with perfect flowers) near it, and a heavy mulch in fruiting time. Beyond this it needs no petting. It is not large, but we do not want to cut, or make two bites of a Strawberry. Dr. Warder says that it is large enough for any lady's mouth, and I hope that no gentleman will feel called upon to open his mouth wider."

MARYLAND HORTICULTURAL SOCIETY.—This flourishing Society had a good exhibition at its June meeting. We have a list of those to whom premiums were awarded, but unfortunately no details of the quality of the articles exhibited that would render the report of interest to distant readers.

FRENCH VINEYARDS.—We have been honored by an invitation from Senator Guizot, Lavaline, to have the editor present at a Congress of French Vineyardists, to be held at Clermont Ferrand, in France, on August 31st and September 1st. The object of the convention is to consider the many propositions that have been made in regard to the great "author of their ruin," the phylloxera. Clermont-Ferrand is said to be a chief wine center of France, and the re-union, it is thought, will be as interesting to those who come, as their knowledge will be valuable to vineyard culture. The invitation did not reach us till the 13th of August. We are sorry it did not come earlier, for though the editor would not have been able to be present, personally, he would have been glad to have had some of his horticultural friends visiting France, represent him on the occasion.

HORTICULTURE IN TEXAS.—The Sixth Annual Meeting of the Kansas Horticultural Society took place at Houston, on July 21st and 22d, under

the auspices of President A. Whitaker. From the reports we judge there must be great horticultural activity in Texas. A silver tea set, valued at \$125, for the best floral display, was taken by Dr. Perl; our correspondent Mrs. Byers taking the second set, valued at \$75. Mrs. Byers seems to have been very lucky in floral premiums, as we notice as awarded to her, "a lady's hat, valued at \$15; a silver cup, valued at \$5;" and others of a similar character. The value of the numerous premiums awarded generally ranged from \$5 to \$50. Among the plants exhibited we note that Palms, Coleus, Caladiums, Crotons, Gloxinias, Hibiscus, Begonias, Fuchsias, Ferns and Geraniums were most popular. Among the fruits, Figs, Oranges, Lemons and house Grapes, receive frequent mention.

The exhibit of pears of Master Willie Fielding was acknowledged by all to be the finest specimens of this fruit ever exhibited in the State, the varieties represented being the Louise Bonne de Jersey, Clapp's Favorite, Beurre Clairgeau, Duchesse d'Angouleme, Howell, Beurre Griffin, Beurre Deil, Beurre Superfine, and Beurre Giffard. He received the premium offered for the best specimens of this fruit.

In regard to the best agricultural industries of Texas, Mr. Whitaker said in his address:

"It seems incontestable that the sugar cane is, and will be in the future, the most reliably profitable of any farm industry on and below this parallel of latitude. I therefore suggest that you use your best influences to introduce its culture on every farm, with the certain assurance that by the day that a surplus is accumulated, central sugar factories will be established at accessible points to receive and handle the same."

GEORGIA STATE HORTICULTURAL SOCIETY.—The annual meeting was held at Atlanta, August 4th and 5th, and was remarkably successful. President Berckmans presided. The city itself is a marvel of prosperity. It is not so many years ago that it was a wilderness, and though suffering severely during the war, has shown wonderful powers of recuperation.

In a discussion on the apple leaf fungus, Mr. Berckmans suggested to Professor Willet an investigation of the fungus which attacks the apple leaf, and suggested that it might be propagated from the red cedar.

Mr. Newman said that his attention had been called to a statement in the *American Agriculturist* that this fungus was one stage of the growth of that on the cedar. He had noticed that apple trees growing near cedars were worse affected than those remote from them, and that the fruit and leaves of the quinces were attacked and the tendrils similar to those on the cedar ball developed in moist weather on the fruit.

In regard to this the editor of the *GARDENER'S MONTHLY* may note that in some parts of New Jersey the apple trees are as yellow as gold, so much so, that the golden color can be noted for a half a mile away. This "apple leaf fungus" is the fruiting condition of *Roestelia cancellata*. It would serve very much the cause of American

Pomology if conventions would get the correct names of the subjects introduced; as then the whole circle of intelligence, knowing what was talked about, could throw in its mite of information. Unfortunately little is known of the manner in which the *Roestelia* works, so that no one can suggest any remedy. The fungus which makes the apple on the cedar is the *Podisoma*, and has no relation to the *Roestelia*.

In regard to the effect of habit on character, Dr. Jones observed: "Corn adapts itself to almost all climates while the Apple is extremely fastidious. Seed Corn brought from the north to the south continues its habits of maturing in a short period, but seed from this grows later each year. The reverse is true when Seed Corn is carried from a southern to a northern climate."

During a discussion on Apples, Dr. Jones asked Mr. Berckmans if he thought we would ever be equally successful with the North in producing Apples.

Mr. Berckmans replied: Judging from our experience for the last twenty-five years, I think not. Our Apples will develop their tendency to early bearing, and with that follows short life.

In regard to early Peaches, it was conceded that there was a real gain, and that there were varieties which had placed the Peach season a month earlier than it was fifteen years ago. In the matter of location of a Peach orchard, Mr. Berckmans alluded to the fact that on Lookout Mountain, where Mrs. I. W. Bryan, who has such a fine exhibition in our hall, resides, the trees most exposed to cold blasts had escaped most, while those best protected by forests had been killed. Dr. Hape reported that no essential difference in any respect could be discovered between the Amsden and Alexander Peaches. The same singular phenomenon was noted this season, which the *GARDENER'S MONTHLY* noted in other sections last year, that there was no material difference in the ripening of any of the early Peaches. They were all later than usual and ripened together. A few cases of yellows had been seen on the orchard of Mr. Kintey of Savannah. Some other kinds of "blights" were freely discussed.

Dr. Hape thought trees planted on a northeast eastern exposure escape the blights more generally than those having a southwesterly exposure.

Mr. Kinsey, of Chatham, said his experience and observation in his own orchard sustained Dr. Hape's views.

Mr. Cole had found linseed oil on the bark of the Peach produced no injurious result.

Referring to the Pear, Mr. Berckmans has not known the Le Conte ever to have the dreaded "fire blight."

In the exhibition there were no less than thirty varieties of vegetables from Mrs. Bryan, showing how great is the assortment which can be raised in that region.

Apples, Pears, Peaches and Grapes comprised most of the fruits of the exhibition: and flowers came from Mrs. Inman, Mrs. Galcerun, and Mrs. Keely. Mr. P. J. Berckmans, was selected for the sixth time President of the Society.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Over and over again for years past we have dwelt on the great necessity for shade to the soil, as the great one thing which the cultivator has to learn from American works and from American experience, that he will never learn from the best European works, because there they want the soil warmer than it is, rather than to be cooled. The coolness afforded by the shade is the great element of value in growing fruit trees in grass, and ornamental trees on lawns, which, as everyone knows, do better on a well-kept lawn than in a piece of ground where the surface is kept clear of all vegetation. It may, perhaps, have been an oversight that we have not as strongly urged the great value of shade for border flowers as for ornamental trees or fruits. The importance of this shade was very strongly brought to mind in a recent trip to the South. We remained over a day at the Relay House, below Baltimore. The hotel belongs to the Baltimore and Ohio Railroad Company, and the grounds around it are of the most charming description. Tasteful walks, neatly mown lawns, artistically grouped trees and shrubs, with not a weed to be seen, or anything out of place anywhere. But the great attraction was the profusion of charming flowers there, and in the highest condition of luxuriance. In *Verbenas* especially, we never saw anything to equal them. The single flowers

were about an inch across, and the trusses were of enormous size. The chief element in this success was the shading of the earth from the hot sun. All over the surface of the earth fresh tan bark was strewn, and gave the cool shade in which the roots luxuriate. This is not the season for shading soil; but it is in time for our "Seasonable Hints," that one can so think over and arrange things, as to have the needful shade for next season.

While caring for next summer's protection from heat, look out for winter protection from frost. Numberless things will endure frost,—at the same time remember that even in the hardest cases frost is no benefit. In protecting, Pine, Cedar and *Arborvitæ* are often used, but they often injure by the turpentine which comes out when the branches freeze. In like manner be careful with rank, strawy manure, for the salt it contains does injury. Too great a thickness of leaves will breed mildew, besides being unnecessary. Plants often die from excessive evaporation, and bright sunlight in winter helps evaporation. Just enough covering to keep off wind and sun-light is all that most half-hardy plants need.

Many kinds of hardy annuals flower much better next spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in spring they must be transplanted to the desired position in the flower border.

Few things are more valued in winter than a bunch of Sweet Violets. A few may now be potted, and they will flower in the window towards spring; or a small bed of them may be made in a frame, which should be protected by a mat from severe frost. To have Pansies flower early and profusely in spring, they may be planted out in a frame, as recommended for the Violet.

Herbaceous hardy border flowers are often propagated in the fall by dividing the roots; but unless it is convenient to protect the newly-made plants through the winter, it is better to defer this till spring, as the frost draws out of the ground and destroys many. Where it is now resorted to, a mulching of leaves or litter should be placed over the young stock when transplanted.

Chrysanthemums now in flower should have their names and colors rectified, against the time when in spring they may have to be replanted, when they can be re-arranged with accuracy and satisfaction, according to the owner's taste.

Amongst the pretty effects which we have seen this year, have been several attempts at forming winter gardens of evergreens. It was suggested in England a few years ago, that the massing system of growing flowers in summer was objectionable in this, that it left the beds naked through the winter. To remedy this, they had a reserve garden of evergreens from which the plants were taken every year after the frost had killed the flowers, and set in the places where the flowers were. This makes the flower garden look green at least during the summer season. This reserve garden of evergreens is usually put into an out of the way place, and does not look very inviting in the summer time. In the case we have reference to, the reserve garden had the evergreens set rather wide apart, and the spaces between filled with Coleus, Achyranthus, and other colored and variegated leaves. The effect was very pretty indeed.

COMMUNICATIONS.

WOMAN IN HORTICULTURE.

BY S. B. PARSONS.

Read before the New York Horticultural Society.

My few words will not consist of compliments to woman. However deserved, they belong to the social rather than the horticultural circle,

to the drawing-room rather than the platform. Mine will be simply an appeal to the women of New York to aid this society by the charm of their presence and the influence of their example.

The true, the well-balanced, the perfect woman is an embodiment of taste and skill and culture, with the addition of those other graces of mind and sentiment and form which influence fathers, husbands and brothers. This influence is potent, and every true man, loving some true woman, delights in nothing so much as the gratification of her wishes.

Men are immersed in business—in the many engrossing cares of life. They have little time to give to its pleasures. A rise in stocks, an advance in sheetings, a corner in wheat, will give them a sensation which the fairest flowers can never furnish. But when the cares of the day are over, and in the quiet evening a man becomes the centre of his home circle—of daughter and sister and wife—he realizes the breathing of a new atmosphere.

In the gentle nature which is then uppermost, he responds gracefully to all intimations. If Edith describes that love of a bonnet which she saw in Broadway, a few tens are quietly slipped into her hand, and an arm stealing around his neck with a pat on the cheek tells him that he is a very nice sort of a father; if sister Sue has seen at Stewart's a new silk, the shimmer of which is like sunlight, a piece of paper with two ciphers upon it finds its way between the leaves of her book; and when the crown of the household, with her shining eyes, describes the beauty of Moran's Holy Cross, a check is found next morning upon her toilet table.

Now, this is all as it should be, only, for a little while, we would urge that in place of the bonnet and the silk and the picture, they would describe the rich scarlet of the Jacqueminot, the pure white of the Niphetos, the delicate fawn of the Safrano roses, with all the richness of the various flowers which they have seen during the day at the monthly exhibition of the New York Horticultural Society; and impress upon him how much more worthy of a permanent home—of a hall of their own—are these pictures of nature's painting than all the products of the genius of man. The last are limited by the narrow bounds of human skill and power; the former are limitless in their shades of color and variations of form. Nature never copies. Every shade of a color, every curl of a

leaf, every droop of a stem, is its own and has no fellow. The waves of the ocean, the clouds of the air, the fleeting expressions on a human face, are not more varied than are the colors and forms of plants and flowers.

With her own speaking eyes and lips let her tell this to her charmed listener; let her describe to him how great a pleasure it would be to her, on parting from him each morning, to go to a flower market which he has assisted to build, and there to feast on the gathered treasures, bringing home with her all she needs to give a charm and fragrance to her dining-table or drawing-room. While she is speaking, his eyes may prefer to dwell upon her face, but let her direct their attention to the check-book at his elbow and suggest that the check for ten thousand dollars be made payable to the treasurer of the New York Horticultural Society. Here would lie her legitimate influence; why should she not exert it?

Woman has always been the patroness of horticulture.

In the beginning of the world all things were pronounced good, and among them was a garden. Man was placed in it to care for and to dress it. He soon found that for this, as well as for many other things, he needed more taste and a finer sense than any he possessed; so woman was given him as a help-meet for him. May we not suppose that this was in an especial manner horticultural help?

Among all the pictures which imagination paints upon the human brain, I think there is none which has a greater charm than that of our first mother, with her graceful form and perfect face, illumined with the soul which had come direct from the Almighty, wandering in the garden which we may well suppose to have been the most beautiful ever known, because in it grew, as the Scriptures tell us, "every tree that is pleasant to the sight and good for food." Under her skillful hands, divinely guided, every plant flourished, every tree developed its most graceful forms. She walked over the yielding turf, by the side of the running brooks, and sportively wreathing on her hair or gathering in her hands the varied flowers whose fragrance burdened the perfect air, she wondered if any other being had been created for such enjoyment as was now her daily lot.

So she appeared, until that sad day when she made her first pomological experiment, and, frightened at the result, hid herself among the

trees of the garden, from which she came out to minister, through her descendants in the coming ages, to the unfortunate admiration of man for millinery.

As the ages have passed woman has been gradually arousing herself from this thralldom. May we not ask her now to throw it off entirely, to go back to the old love which our mother had for her garden, to show that she is a true daughter by every means at her command, and to encourage, as one of her instruments, the New York Horticultural Society?

In the short time that I have allowed myself to-day, I cannot go over the whole field of ancient and modern biography, to show the connection of woman with horticulture. It is apparent in Grecian history and mythology, in the latter especially, because the mythology of a people is the outgrowth of their daily life.

In the garden of Hesperides was found the golden apple which Atalanta's lover threw. Daphne, in her flight was changed into the beautiful shrub which bears her name, and recalls her memory by its fragrance and beauty. With the hanging gardens of Babylon, Xenophon has made us familiar. Their unique magnificence has not since been equaled. Their builder was Semiramis, and, I am sorry to say, that her true love for flowers did not prevent her seeking for the most certain mode of divorcement in killing her husband.

We have so little record of the pursuits of women in early days, that we scarcely know of their devotion to any one interest. It is not to be doubted, however, that noted women, like the queen of Sheba, Zenobia, Cleopatra, and others, in their effort to surround themselves with everything beautiful, gave a true place to plants and flowers. Coming down to a later period, we find that in the sixth century, Ultrogothe, the first wife of the first king of Paris, was devoted to her gardens. They were worthy of the splendor of her palace, and the roses in them were especially famous. Equally noted were those of Galiana, the favorite daughter of King Galafre, near Toledo in Spain. At a later period there were gardens of great beauty at Sceaux, made by a duchess.

The Grand Trianon at Versailles, built by Louis XIV., was the favorite garden of Madame de Maintenon; and the Petit Trianon, in its walks and groves, witnessed the enjoyment of that unfortunate queen, Marie Antoinette.

At the end of the eighteenth century, the Empress Catharine of Prussia was a liberal patro-

ness of botanical collectors, and gathered under glass many rare and beautiful plants.

The splendors of the tropical vegetation of her early home dwelt in the memory of Josephine, when she came to Malmaison and added to the graceful vivacity of her manners the charms of beautiful gardens. Her collection of plants was large, many of them being obtained in this country, by a collector kept here at the joint expense of herself and some English gentlemen.

In England there has been more than in any other country, a fondness for plants shown by women of all classes, from the noble and cultured to the simple peasant's wife. In the eighteenth century, the Duchess of Beaufort collected a large quantity of rare plants in the famous gardens of Badmington, where they were maintained in great beauty. At a later period in the same century, the Princess Dowager of Wales established the Arboretum at Kew, which thus became the nucleus of a still larger collection now unsurpassed.

Still earlier—in 1706—the Countess of Harrington was a great lover of trees. She sold her jewels to enable her to plant Binning Wood. Will the ladies of New York sell their jewels to build a horticultural hall and flower market?

One of the most beautiful places of England was formed, partly by the influence and partly by the pique of a woman.

The former Earl of Harrington married an actress, and the gentry of the neighborhood refused to recognize her. He therefore resolved that he would have something which they should not see while he lived. So to Elvaston Castle he brought, at great expense, large cedars of Lebanon, yews and other trees. Some of the yews were over six hundred years old. The result was a place of wonderful beauty, which was rigorously closed against visitors until after his death, when it was thrown open to the public. I shall not soon forget my first sight of it, and no words of mine can do it justice. A hollow hedge of yew seemed like the sinuous folds of a boa constrictor, with windows in its sides, and all around were golden yews trimmed in various forms—of columns and pedestals and vases and birds and crowns and footstools and arm chairs, all bright as burnished gold, while dark green upright Irish yews stood on guard like sable sentinels in a golden palace.

At Binstead, in the Isle of Wight, the skill and taste of Lady Downs has formed grounds of much beauty. Lady Pembroke is the author of

the well-known garden at Wilton House; and the Countess of Cowper designed the remarkable Box garden at Panshanger. These are but few of many instances. All England is one vast garden, and an English lady who does not take an interest in her own part of it, is an exception. In some instances the result of this interest is very remarkable. I once stumbled upon a curious piece of rock landscape near the quaint old town of Chester, and found that it belonged to Lady Hamilton, owing its creation to her taste and skill. From the seclusion of a hedge we opened suddenly upon the lawn. The illusion was perfect. There was scarcely two acres of ground, and yet there appeared a broad valley with Alpine mountains. Rockwork formed the mountains, with gentle slopes and occasional pockets, while the crowning forests were small pyramidal evergreens, so arranged that it was difficult to realize that the foreground did not cover miles of plain,—that the rocks were not truly Alpine heights, crowned by Alpine forests.

I have spoken of the interest in horticulture shown by English women. We are not entirely deficient in this country. I know many American women who take more interest in their grounds and know more of horticulture than do their husbands. I was once walking with an accomplished lady through her grounds near Baltimore, and found that she was familiar with all processes of culture, and had the true business capability, in that she paid all the expenses of her lawn and gardens by the cultivation and sale of mushrooms.

The genius of American society is, however, against country homes and their resulting gardens. The attractions of watering places and of foreign and domestic travel, are such that American women prefer to move about, to avoid the cares of a country house and the annoyances of domestic service. Thus it is doubtful if our country will ever contain the numerous charming country homes which are found in England. If such country homes are few and exceptional, there is the more reason to have the city homes adorned by all that is beautiful in plants and flowers.

It is possible to have gardens upon the house-tops, into which all beautiful and rare plants can be gathered. It is possible to have a horticultural hall in which will be exhibited every variety of plant or flower which American enterprise can furnish. It is possible to have therein a library, which will give all the horticultural information

which has ever been printed. It is possible to have a flower market, where every woman will find a daily exhibition, and on which she will every morning feast her eyes as certainly as she takes her daily bread. It is possible to create such a demand for plants and flowers, that both commercial and private growers will keep such a market filled with the most varied and choice productions. A lady walking through this market will not be confined to the few roses already known to her, but all Roseland will be before her. She will not be limited to the stereotyped flowers of the shops, but her eye will feast on a varied richness of which she had never dreamed. Her knowledge of plants and her taste alike will be cultivated, and the desire of possession, with transfer to her own rooms, will come, as it does with the sight of a beautiful picture.

Our subject is a fertile one, but time will not allow me to pursue it farther. I will conclude with a chapter in the world's history hitherto unwritten.

When Eve first realized the terrible consequence of her daring experiment, she cried out, in the very agony of her soul, "What shall I do? All men will curse my name forever. How can I and my daughters bear this burden through all the coming ages?"

And then from out the cloud, came the voice of infinite compassion:

"I know thy weakness, and that thou wert deluded by one more powerful than thou. In my own immutable justice I cannot release the penalty, but in compensation for thy sufferings, I will give in abundance to thee and to thy daughters after thee, that which is given only in a limited degree to man. I will give to thee and them a voice soft, low and persuasive, like the music of birds, a beauty of face, a grace of manner, a refinement of taste, a quick sense of the beautiful, and a capability of unselfish affection which shall charm all who are near you; and in the charm men shall forget the sin. And if you obey me, I will give you an abounding sense of my presence and the ability to love me always."

The voice ceased, and Eve rose up comforted, with a face like the face of an angel.

May we not confidently appeal to this grace and taste and sense of beauty in the women of New York, to come forward and help us now; to give their presence at all our exhibitions and assemblies; to use their influence with those whom these qualities can charm, and through

that influence to build a hall and flower market for the New York Horticultural Society.

LA FRANCE ROSE.

BY H. G. HOOKER, ROCHESTER, N. Y.

Here in Rochester the La France Rose is proving itself worthy of its name and fame. Nothing can excel it in beautiful, delicate color, exquisite and abundant perfume, and profuse, constant blooming from the commencement to the close of vegetation; just as long as growth is maintained, beautiful bloom will follow; in fact the habit of over-flowering is its principal drawback. Unless high cultivation and liberal manuring are furnished, it will be stunted by excessive flowering; but if freely manured, and a portion of the too numerous flower buds are cut off in season the results are admirable. At the present writing, August 17th, my nursery plantation of one-quarter of an acre of La France roses, where the early flowers were cut off until the plants were well established, and good culture given, is a place of beauty and fragrance beyond anything I have ever seen in rose growing. Some of the blooms are five inches in diameter, many are four inches across, and all furnish shades of color and reflections of color on the inside and outside of the petals quite beyond description. As this rose is hardy, at least in the root and nearly so at the top, it ought perhaps to stand at the head of the Hybrid Perpetual class all things considered, as combining the largest number of good points. It will need close pruning, nearly to the ground, every spring, free manuring, and some reduction of the over-numerous flowers.

THREE POPULAR HONEYSUCKLES.

BY J. M.

Just now, in June, when Honeysuckles are in flower, is a good time to note the differences in the kinds. The three most useful climbing Honeysuckles are the brachypoda or Japan, flexuosa or Chinese, and Hallian or Hall's. Of these the first two flower at the same time, the Hall's being a week or ten days later, always.

If there is any difference in the degree of fragrance, it is probably in favor of the Chinese, though there is but little, if any. The Chinese, having purplish leaves and rosy flower-buds, with cream-colored flowers when expanded, makes the most contrast of any, and, therefore, with those who know the difference, this kind is

oftener planted than the others are. The Japan, however, is useful in its way. There is not the contrast between flower-buds and flowers and leaves as in the Japan, because the leaves when young are of a light green, and the flowers are cream-colored, both in bud and when expanded; but it is such a bushy grower, that for covering old stumps of trees and many other purposes it is just the thing. The chief merit of the Hall's Honeysuckle is its late blooming, coming in, as it does, when the other two are about past their prime. It also blooms occasionally through the summer, but not sufficiently well to merit the name of everblooming, which some bestow on it.

EDITORIAL NOTES.

THE BEST ROSE.—In France recently they tried to find out what was the best Rose by vote. La France had 79 votes, while Marie Van Houtte had but 25. The old La Reine had 42, and General Jacqueminot 52. These votes are like our fruit votes. The one which is the most extensively grown will get the most votes, because half the voters do not know of many other kinds. But it is a superb kind.

XANTHOCEROS SORBIFOLIA.—This rare and beautiful tree can be propagated by root cuttings.

THE HEMLOCK SPRUCE.—It seems almost a matter of experiment whether trees do well or not in any part of the world. The Evergreens of the Pacific coast thrive in England, but do no good in the Atlantic portion of the United States. On the other hand, it is only exceptionally that the Hemlock Spruce of the Eastern States does well in Great Britain. A correspondent of the *Garden* has found it do well in clay soils in Austria.

LILIUM PARRYI.—This new Lily already noted in our magazine, is thus referred to by Max Lichtlin in the *Garden*, as appearing at Baden-Baden: "Lilium Parryi is not, I consider, the showiest of American Lilies, but it is one of the most elegant. Here it has seven flowers on a stem 5 feet in height; their color is a deep citron-yellow, with a few crimson spots; they stand out horizontally, and are tubiform and about 4 inches in length; the pollen is reddish brown. Mine is the best variety. Some of them appear to be much paler and not so large-flowered. It is a very elegant and graceful Lily."

PUBLIC SPIRIT.—Geo Hubbard of Connecticut, says: "Nearly all our towns are full of objects of

natural beauty, easy of development, and very many of them rich in legendary and historical associations. What is greatly wanted is something more of rural art and adornment; something which shall beautify our country villages, educate public taste, make the homes of the fathers dearer to their sons, and the local associations of childhood dearer to old age, and thus turn back, in part, at least, the tide of migration from the rural towns, and make the city seek the country life, and make it what it used to be in our own State and what it still is in the oldest and most cultivated nations of the world."

LILY CULTURE.—People in our country buy Lilies and other rare native things, and stick them in common garden ground, and when they die "only wish they had the climate of England to grow these nice things." But in England they have to use some nice judgment in selecting first what each particular class of things require. In fact, it is horticultural skill and not mere climate that makes success. Witness what a correspondent of the *Garden* says about Lilies: "I have been down to Ware's to see how the Californian Lilies looked after the severe storms and rains, and found them as happy as if they had been in a glass case all the time—stately and vigorous, showing great beauty of form as well as splendor of blossom, sometimes held well above a man's head. This superb Lily growth in our own country settles at once the question of the culture of these noble flowers, which come to us from one of the fairest lands in the world—certainly the happiest for flowers and trees I ever saw. They are grown in light beds of free and rich vegetable soil—decayed manure, Cocoa-nut fibre, or leaf-mould, with a little mulching of half-decayed stable manure over the earth. The soil is the very opposite to that which we see in a hard-baked border, and which may be described as an unnatural soil. The earth in which they do so well in every stage—'scale' plants, Lily babies, children, and up to the tallest—is mixed after all on a natural plan, so to say, because in woody places, in copses, there are accumulations of vegetable soil for ages. In it plants find a different medium from what our hard and fully-exposed garden soil so often is. The question, then, of growing these Lilies is for ever settled, and those who have not got beds of Rhododendrons or other American plants in which to put them know exactly what to do. A late form of the Californian Lily is very fine in flower now, coming in after the usual type begins to fade."

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

The taste for cut-flowers, like the taste for bedding plants, has grown to such proportions as to almost overshadow the love of beautiful winter-flowering plants, which in the past made the greenhouse in winter such a love of a place to spend a few hours in. The cut-flower enthusiasm covers only a score or two of items, some half dozen kinds of roses, Callas, Bouvardias, Heliotrope, Carnations and Mignonette, and the list is near complete. The taste for all does a little for true flower culture. It cannot be that the love of flowers will stop with a "bunch," a tasteful bouquet, or a basket. Some among the admirers of these conventional things will want to move, and we have little doubt that the love of nice collections of well grown winter plants will grow out of mere "cut-flower" love.

For winter-flowering many things like Carnations, Bouvardias, Jasmine, and others, are grown out of doors during summer, and are lifted and potted early in October.

In taking up things from the ground for potting, care should be taken to have the pots well drained, with pieces of potsherd over the hole. The more rapidly water passes through the soil the better plants will grow. Pots could be made without holes, and the water would all go through the porous sides in time; but that is too slow a way, so we make a hole to admit of its more rapid escape, and we place the broken pots over the hole to make a vacuum, which assists the object of the hole. In very small pots, or with plants which have strong enough roots to rapidly absorb all the moisture they get, and speedily ask for more, "crocking" is not necessary.

Bulbs for flowering in pots should be planted at once. Four or five inch pots are suitable. One Hyacinth and about three tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.

To watch for the first appearance of insects of all kinds, is one of the chief points of immediate

interest in plant culture. If they once become numerous, it is often better to throw away a plant entirely than to doctor it after the old methods.

COMMUNICATIONS.

HYGIENIC AND THERAPEUTIC RELATIONS OF HOUSE-PLANTS.

Read before the Alumni of the Auxiliary Department of Medicine, University of Pennsylvania, February 6, 1880.

BY DR. J. M. ANDERS, PHILA.

The old question of the effects of living plants on the air of houses is one of considerable interest. The family doctor is oftentimes confronted with the query, "How do plants in rooms affect the health of the inmates?" Formerly, it was the universal opinion that they were injurious to health, particularly in the sleeping-room and sick-chamber. Unfortunately, this still continues to be a popular impression. To review the various views on this topic down to the present would be foreign to the scope of this article and quite out of place. The discussion will necessarily be confined to the present state of our knowledge concerning the subject, and especially such of its bearings as are interesting from a medical point of view.

Three of the chief functions in plant life are the absorption of carbonic acid, the exhalation of oxygen, and the generation of ozone. Now, it has been conclusively shown* that variations in the amount of these gases from the presence of any number of plants have no appreciable effect on the air of an apartment, the absorption and exhalation of these substances being carried on too slowly either to improve or to vitiate the air.

There is, however, yet another process in plants, which in this connection is of far greater importance, viz., that of *transpiration*. By this term is meant the exhalation of moisture by the leaves. About this function very little was known until recently. Careful investigations of the subject have been made by the writer, to which brief reference can only be made here, for they have formed the basis of a paper else-

* Pottenkofer, Pop. Science Monthly for February, 1878.

where.* It may suffice to say that the average rate of transpiration for plants having soft, thin leaves, as the geranium, lantana, etc., is one and a half ounces (by weight) of watery vapor per square foot of leaf-surface for twelve diurnal hours of clear weather. In order to convey some notion of the great activity of this function, it might be stated that at the above rate the Washington elm, at Cambridge, Massachusetts, with its two hundred thousand square feet of leaf-surface, would give off seven and three-quarter tons of water in twelve hours. In the twenty-four hours an indoor plant will transpire more than half as much as one in the open air. It would appear to follow naturally from these facts that growing plants would be capable of raising the proportion of aqueous vapor of the air of closed apartments. And this suggestion prompted the writer to make observations with the view of establishing this fact experimentally. By means of the hydrometer, the atmosphere of two rooms at the Episcopal Hospital, in which the conditions and dimensions were in every respect similar, were tested simultaneously, in order to note the variations produced by growing plants. In the window of one of the rooms were situated five thrifty plants, the other contained none.

For eighteen consecutive days the dew-point of the room containing plants gave an average complement one and a half degrees lower than the room in which there were no plants. Thinking that possibly this difference of humidity might not be owing solely to the presence of plants, the conditions were varied, and further observations made, with similar results. The manner in which these investigations were carried out cannot be here detailed. The following conclusion should, however, be quoted: "During the summer months, when the windows are thrown widely open and the doors kept ajar, the influence of transpiration is quite inconsiderable; on the other hand, when the interchange of air is not too rapid, a sufficient number of plants, well watered, have the effect (if the air be not already saturated) of increasing the amount of moisture to a considerable extent."† This point, as will presently be seen, is of special importance where houses are heated by dry-air furnaces.

Although science cannot readily determine the exact relative humidity most conducive to

health, still, according to the best authorities on the subject, it is considered that about seven-eighths of what the air will contain at a given temperature is the proper standard. By repeated testing the writer has recently found that the degree of humidity is generally below that standard in this latitude. It was also found that air warmed by an open fireplace, or by air heated by steam, gave a complement of the dew-point from two to four degrees Fahrenheit greater than the external air, and in the case of rooms heated by a dry-air furnace the complement was from five to seven degrees greater at the same temperature. From this exhibit it will be seen that the atmosphere of a room warmed by dry air contains far too little moisture to be healthful. The peculiar effects of dry air on human beings are well known to the progressive practitioner. With respect to this question Prof. A. Stillé observes, "... A great demand is made upon the system to supply the air with moisture; the skin and pulmonary mucous membrane are dried, and a condition is induced which is expressed in irritability of the nervous system, paleness and susceptibility of the skin to cold, liability to pulmonary diseases, and, in a word, deterioration of all the functions."*

It is true that in special states of the system—e. g., in chronic rheumatism—dry heat is beneficial; but this is no argument against the benefit ordinarily derived from a proper amount of moisture in the atmosphere. On the other hand, if the presence of a certain number of thrifty plants in an occupied room warmed by dry air would have the effect of raising the relative humidity to the extent indicated, it is clear that we possess in them one of the readiest means of obviating these evil consequences. In all instances, then, in which artificial heat is used, but particularly in the case of dry air, as that furnished by furnaces, plants become, under proper regulations, hygienic agents of special value.

Were this article intended for popular reading, much might also be said in favor of keeping house-plants for the benefit they confer in delighting our senses and ministering to our æsthetic tastes; but we are discussing the question from a strictly medical point of view, and such matter would be somewhat irrelevant.

Since it is well established that certain maladies are benefited by a moderately moist and warm atmosphere, and since plants can, as has been

shown, furnish this moisture to the warm air of rooms, they might with propriety be classed as *therapeutic* agents; but to draw lines of distinction between their hygienic and their therapeutic application would be an unnecessary refinement of terms.

Of course it is chiefly in diseases of a chronic nature, and particularly those affecting the lungs and air-passages, that we should expect to derive good results from such a measure as stocking the sick-room with growing plants, for it is in such cases that dry heat does the most harm. Still, they would prove beneficial also, in a less degree, in acute diseases, especially the continued fevers, and, perhaps, membranous croup, where moisture in the air is so desirable. House-plants have, however, a sphere of usefulness which is independent of atmospheric humidity. In nervous disorders of the functional class, such as melancholia and chlorosis, in diseases of the mind proper, and in other allied conditions (excessive grief, ennui, etc.), where it is necessary to divert the mind or relieve tension, nothing is more efficient than the pleasing occupation of studying and caring for plants.

But it is in that sweeping disease, phthisis that plants offer the best hope of success as therapeutic agents. The importance of this point demands that it should receive careful attention.

(To be continued.)

NEAT GREENHOUSES.

BY RAMBLER, PHILA.

Some people have associated such a tropical idea with the sight of a greenhouse, that they positively shrink from entering it on a warm day, and this idea is fostered by the custom, and in the explanation of the majority of gardeners on the summer cultivation of greenhouse plants, in the turning out of all and every movable plant (wholesale and retail) out of the greenhouse and huddled together *sans cérémonie* under trees, hedges, back walls and out-of-the-way corners; the affair is finished by putting an embargo on the greenhouse door. The place is forthwith proscribed, and like a sleigh, it is laid away until winter, when it is again stuffed full of its former occupants, and all under the absurd notion that nothing will thrive in it during the summer months.

If gardeners would for a moment study the effects of this method they would soon abandon it for a better. Nothing can be more injurious to them or to their profession.

If we would create in the minds of our employers a lively interest for the subject of our labors, we ought to render those subjects as interesting as possible. We must give a visible polish to the productions of our art. The flower garden may be parched with drouth, but the greenhouse ought always to be in a blaze of beauty. But, can this be done? Certainly. Nothing is more easy. To effect it successfully, however, the gardener must not only have a "weather eye," but also a philosophical one, so as to discern the times and the seasons, the transitions of nature and the nature of the plants, and the atmosphere we place them in as well as the soil and water we supply them with. In short, we must do things in the proper manner and at the proper time, in close imitation of the teachings of nature. We ought to have that confidence in our operations which is learned only by close practice and strict observation, and without which, plant-growing is both a profitless and pleasureless business, unsatisfactory to our employers and discreditable to ourselves. Every summer I visit a considerable number of places where gardeners are kept, and at most, without one single exception, their greenhouses are empty; perhaps a few old and immovable and unsightly subjects were standing here and there covered with dead and dying foliage, making the wretched appearance of the house more wretched and its confusion more confused.

I admit there are many who have little encouragement to try anything of the kind suggested, and that an empty, disfigured greenhouse, for the want of taste, culture or inclination is as much appreciated as if it was that thing of beauty represented as being to some few "a joy for ever." Nor should we allow small obstacles to be sufficient apology to relinquish or chequer that art that is so worthy our best endeavors. We sacrifice time and convenience to many things not half so worthy our efforts or so satisfactory in their results.

STEPHANOTIS FLORIBUNDA.

BY CHAS. DARRAH, PHILA.

Mrs. R. P. wishes to know of a white climber for her conservatory, I think *S. floribunda* will answer her purpose. Equal parts of turfy loam and peat with sand to insure porosity will form a good compost for this beautiful climber, as it makes rapid growth. Attention must be given to shifting before the roots get overcrowded. Finally it may occupy a 15-inch pot. As growth

*See American Naturalist for March, 1879.

†"Beneficial Influence of Plants," American Naturalist, December, 1879.

*Therapeutics, vol. i. pp. 637, 638.

proceeds the shoots must be regulated by pruning and training, and it will soon cover a large extended trellis or rafter. Towards the end of the season, less moisture should be supplied in order to render the wood more firm; and to insure success in flowering it, attention must be given to keep it free from insects, as it is subject to scale and thrip.

MOSS MULCHING.

BY PETER HENDERSON.

For want of a better name we have given this to a practice that we have recently introduced into our greenhouse department. Sometime about the first of January of this year, one of our young men suggested mulching with Moss (*Sphagnum*) a lot of Roses, grown in 7-in. pots that had become somewhat exhausted by being forced for flowers for the holidays. Believing the idea to be a good one I at once had a lot of nearly 3,000 plants so mulched, mixing, however, with the moss a good portion of bone dust, perhaps one part weight of bone dust to thirty parts of Moss. In two weeks the effect began to be easily perceived on all the Roses that had been so mulched, and without shifting they were carried through until May with the most satisfactory results, many of the plants having by that time attained a height of four and five feet, and though they had bloomed profusely during a period for nearly six months, were in the most perfect health and vigor. Believing that if this system proved so satisfactory in a plant refusing such careful handling as the Rose, that doubtless it would do well with many other plants, we at once, almost without exception, adopted the moss and bone mulch on nearly every plant cultivated, whether planted out in borders or grown in pots, and the result without a single exception has been in the highest degree satisfactory. Among the plants so treated are Azaleas, Begonias, Caladiums, Carnations, Crotons, Dracenas, Eucharis, Gloxinias, Palms, Pandanus, Poinsettias, Primulas, Roses, Hot-house Grapevines, and hundreds of other genera. All plants are mulched as soon as we can reach them, from 3-inch pots upwards. In strong growing plants the roots can be seen striking upwards into the mulch in four or five days after it is put on, and in nearly all cases within two weeks.

One great advantage is that by this system plants can be grown as large and fine in a 4-inch pot as in a 6-inch pot without the mulch, for

the reason that the plant is now fed by the Moss and bone from the surface of the pot—the best feeding point as most cultivators of experience now believe. Another advantage of the mulching system is its great saving of labor, for it just takes about one-fourth of the time to mulch the surface of a pot as it does to shift it. Another, its saving of watering—the Moss acts as a sponge, retaining and giving out the moisture to the plant just as it is wanted. Another that it crowds down all weeds, and does away with the necessity of stirring the soil in the pots or borders. Another and most important advantage to us who are shippers is, that it lightens the weight of our goods by one-half, that is, we get as large a plant with half the weight of soil. In my practice of thirty years, I have never seen a method of culture that I believe to be of such importance; hundreds who have visited us this season have been equally impressed with its value, for the “proof of the pudding” is most apparent in its results. We have used already over twenty team loads of moss and about one ton of bone dust, but never before have we made an investment that has been so satisfactory. If any think we are too sanguine in this matter, we cordially invite them to come and examine.

It may be that this moss and bone mulching is nothing new in the culture of plants, as it is an idea, from its simplicity that may very likely before have occurred to others, and may have been long ago practiced; but it is new with us and new to us, and if any one has before done so and withheld the knowledge from the public, more shame to him, if the result with him has been as gratifying as it has been to us.

THE FRAGRANT OLIVE.

BY C. E. PARNELL, QUEEN'S, LONG ISLAND, N. Y.

In the GARDENER'S MONTHLY for April, 1880, page 106, Mrs. M. W. asks for information concerning the treatment of the fragrant Olive. The *Olea fragrans*, or *Osmanthus fragrans* of some botanists, is a handsome evergreen greenhouse shrub, attaining a height of ten or twelve feet, with small white deliciously scented flowers, which are produced at intervals during the entire year. It is a plant of the easiest culture, requiring a rather moist atmosphere, a cool house, and a compost composed of two-thirds loam and one-third leaf mould or well rotted stable manure. Good drainage is indispensable, as the *Olea* soon suffers if water is allowed to stand

about its roots. The *Olea* is not a very tender tree and is about as hardy as an Orange. It is on this account an excellent house plant. Unfortunately, it is very subject to the scale, and should be occasionally washed with water in which whale oil soap has been dissolved in the proportion of three ounces to a gallon.

During the summer season, place the plant outside in a partially shaded place; if in a pot, the pot should be plunged. Syringe freely and water as often as necessary.

During the winter it requires a temperature of 40° or 45°, and do not allow the plant to become either very wet or dry. Or if the plant is in a pot, the best method of treatment is to plant it out in a well prepared border about the 10th of May, and to take it up and pot it carefully about the 10th of September. I would advise Mrs. M. W. to follow this method of summer treatment if possible.

The *Olea fragrans* is a native of China, and was introduced in 1771, and the flowers are said to be extensively used by the Chinese for the purpose of flavoring tea. Propagation is effected by cuttings of the ripened wood.

SOME HANDSOME PLANTS.

BY MISS A. G., BALTIMORE, MD.

While visiting the large establishment of Robert J. Halliday, Pennsylvania avenue, Baltimore, we were shown some new, rare and beautiful plants, viz., Louis Chretien a Rex, or ornamental leaved Begonia, said to be a new seedling. The leaf is bordered by a band of apple green, shading into a maroon-brown; the latter forming also a large irregular spot in the centre. The space between the border and spot is tinted with a gray-green. Over all glimmers a dark rosy-purple lustre, that deepens in the centre, and at the veins, giving to the young leaves a specially rich appearance.

A Begonia *metallica* (one of the newest) has a broad leaf at the shoulder, but narrows rapidly after to a sharp point. The veins are so deeply indented as to give it almost a convoluted appearance. Its general tint is of a light-bottle or apple-green. A bright metallic lustre covers the leaf, which in the whole plant has the effect of sun-lit dew upon it. A large plant of the Begonia *metallica* exhibited in the Horticultural Society of Baltimore, last fall, excited much admiration.

In a fine collection of Ferns, a variety of a pale green tint, named *Hieroclephia hirta cris-*

tata, was conspicuous for its elegance of form, and a peculiarly graceful fringe terminating the points of each matured frond. Its nature is delicate, requiring the atmosphere of the stove or hot-house to keep it in perfection. It is a new one.

A large purple and white *Petunia*, quite double, with the petals exquisitely fringed, is another attraction among new plants. A climbing plant, which can also be trimmed to a shrubby form, has minute, delicate fern-like leaves, the young ones of which show a tint of maroon, giving a rich coloring to the whole plant, and contrasting elegantly with the mature green leaves. It is named *Paullina thalictrifolia*, and the fronds are said to resemble those of a highly divided maiden-hair fern.

We would call attention also to another lovely plant not quite so new, the *Campsidium filicifolium*, from the Fiji Islands. It is a climbing plant, which grows easily. It is very elegant, and has delicately cut leaves, resembling a fern.

Anthericum variegatum, another novelty, is a handsome plant, with long narrow-pointed leaves bordered with white. The matured plant sends out slender trailing stems that bear small white flowers. There is a green variety which grows very freely, the name of which we have been unable to ascertain. When in full vigor the branching, drooping stems make a graceful adornment for vase or wall-pot, when placed either side of the door or window.

The above are a few of the many fine plants shown. One improvement we saw that we hope will extend to other establishments, viz., the evident purpose of making beauty of arrangement one of the features of the place. We wonder, as a matter of policy, that others do not follow the plan, as all that florists can show of the proper placing and developing of each characteristic beauty is an inducement for purchasers to buy, that they may emulate it. We have frequently seen plants so badly placed as to hide instead of show their loveliness.

In one end of the hot-house the wall was entirely covered with moss, held in by wires. In this are growing *Selaginellas* (*Lycopodium*), Orchids, Ferns, &c., and with these and some of the wild plants introduced with the moss form a fairy scene of beauty. Near these orchids are suspended also ferns, and overhead droop the branches of the lovely *Allamanda Schottii* with its primrose colored bells, mingled with the large dark-blue flowers of a tropical morning glory,

the *Pharbitis hispida* Dickensonii. Tree ferns, delicate filmy-leaved ferns like a cloud of airy-green; climbing *Selaginellas* (moss), with the exquisite steel-green tint, so rare; *Dracænas* in stately grace, and of varied color, with hanging or climbing plants interspersed, and others of beautiful forms or colors, made up the charming assemblage. Added to this in the centre of the house a wall or grotto is formed of West India brain coral, in the interstices of which are growing on one side sun-loving plants of various kinds, and on the other, lycopodiums, ferns, begonias, arums and other moisture-loving plants, among which trickle tiny streams of water that fall tinkling into a large tank surrounded with fairy-ferns, and containing water plants. In time these will be walls of living verdure and a rare pleasure to see. Something of art, and more of nature (for who can rival her inimitable grace), combine to make a refining and constant pleasure; for the pleasures of nature seldom weary. The love of flowers and trees is one that time seldom destroys, for it is renewed day by day, and constant investigation only adds to our knowledge of the wonders and great wisdom and power of their Creator.

EDITORIAL NOTES.

PLANTS IN LIVING ROOMS.—The excellent papers on plants in living rooms by Dr. Anders, of Philadelphia, which we published, and now have attracted more than usual interest in Europe. The *Record* says of it:

"There was once, still is, perhaps, a superstition that plants in rooms are unwholesome. Setting aside special cases it may be said that, as a general rule, plants in a living room, if they have any perceptible effect at all, are beneficial rather than otherwise. We are glad to see, says the *Gardener's Chronicle*, the faculty taking this view of the subject. An American physician has, it seems, pointed out that by their powers of transpiring moist vapor plants render great service in rooms warmed by dry air. The value of plants and flowers as *delassement* for the weak and weary is acknowledged on all hands. Dr. Anders, according to the *British Medical Journal*, goes further, and states that the pursuit of gardening, though it naturally favors rheumatism, appears to arrest consumption in persons of phthisical tendency, while the abandonment of the pursuit in other cases led to the development of the disease. Dr. Anders recommends a room well stocked with plants as a complete and

agreeable health-resort free from the inconveniences of traveling and the anxiety of separation from home. We concur with our contemporary in the opinion that the doctor has opened up a most interesting subject for investigation."

PAULLINIA THALICTRIFOLIA is one of the most beautiful of plants, and one that cannot fail to become a favorite. It is a native of the southern Brazils, from whence it was introduced to the nurseries of Messrs. Veitch & Sons, of Chelsea. In general appearance it is not unlike a minutely cut-leaved Maiden-hair Fern, and, indeed, so much does it resemble a Fern, that it might easily be mistaken for one. The leaves are of a rich shade of green, and, as the specific name implies, they closely resemble in shape those of some species of dwarf Meadow Rue (*Thalictrum*). The young branches are clothed with a velvety down of a greenish-chocolate color, and the woody stems are also tinged with brown.

If only required for decorative purposes there should be no inclination to make the plants produce flowers, which are inconspicuous; therefore the main object should be to have plenty of healthy foliage. To secure this, the plant should be grown in a temperature of from 65° to 70°, and if one part of the greenhouse is more adapted to its growth than another, it is the dampest part. After this plant came into the possession of Messrs. Veitch, and before its true value became known, some plants of it were placed in a corner of an old, very damp, warm pit, in which position they grew wonderfully strong, and quite surpassed in vigor and beauty those that were, as was then supposed, placed under more advantageous circumstances, *i. e.*, in drier and lighter parts of other houses. Care is therefore now taken to keep them where abundant atmospheric moisture can be supplied. This plant may be grown to train on a small trellis or to affix to short rafters, but the best mode is to grow it so as to form little well-foliaged specimens. A compost consisting of two parts good substantial peat and one of loam, together with some silver sand, suits it admirably. —*Gardening Illustrated*.

DECORATIVE ART.—The *Gardener's Chronicle* tells us that recently a ball to the Prince of Wales was given by Mrs. R. C. Naylor, in Belgrave Square, and to give sufficient accommodation to the numerous guests a spacious pavilion was thrown across the back garden, covering in

a good portion of its space. It was found necessary, in order to have adequate room, to enclose a Weeping Ash tree; and then the question arose how best to utilize this tree. Mr. John Wills, to whom the floral decorations were entrusted, hit upon the happy expedient of converting this tree into a fountain, and for this purpose pipes were laid on to the tree and cunningly conveyed up the trunk to the branches, the trunk having an outer covering of cork covered with creeping plants; and from amid the branches a fine spray was thrown out towards the circumference of the branches. At the foot of the tree was a circular pond, formed of stout zinc, and fitting so close to the trunk of the tree as that no water could get to the roots;

and in this pond were arranged choice water plants, including *Nymphæas* in bloom, Australian Pitcher-plants, Filmy Ferns, &c., and with so much tact and skill and in such a natural manner that they appeared to have been growing there for weeks past. From the circumference of the basin cooling spray was discharged towards the centre, and when the interior of the branches was lit up at night by means of Japanese lanterns, the effect was indescribably charming, and the success of the work complete. On either side of the broad flight of steps leading from the drawing-room to the pavilion large grottos were constructed with waterfalls, and the surroundings were in thorough keeping with the main idea.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

We do not know that under the head of Seasonable Hints we could do better than repeat what we have once said before, that we feel that the advice constantly given to subsoil and under-drain, and manure to the extent of hundreds of dollars per acre is too costly to follow, and of little use after it is taken. If we were going to prepare a piece of ground for an orchard, we should manure it heavily and put in a crop of potatoes; then in October manure again lightly and put in rye. On this, in April, we should sow red clover. The rye off, we should then consider it ready to plant trees. For apples, pears, plums or cherries, we should mark out the rows ten feet apart, and for the trees ten feet from each other. This will be twice as thick as they will be required when full grown, but they grow much better when thick together; and they will bear more than enough fruit to pay for the room they occupy, before the time comes to cut every other one away. We say the rows ten feet apart, but every fourth row should be twelve feet to afford room to get between the blocks with a cart.

Plant as early in October as possible, but it can be continued until the approach of frost. To plant, a hole can be dug in the stubble just large enough to hold the roots without cramping them. We should tread in the soil and trim in the head very severely. The next spring we

should just break the crust formed by the winter rains about the tree, and then leave everything to grow as it might. The clover will be ready to cut in June or July. The twelve feet rows may be done by machinery, the rest by hand. Hay enough will be made to pay for all the labor in one year and a little more. After the hay has been hauled off bring back some rich earth of any kind, and spread about a quarter or half an inch thick over the surface of the ground disturbed in making the hole. This will keep the grass from growing very strong just over the roots. Keep on this way annually, every two or three years giving the whole surface of the orchard a top dressing for the sake of the grass, and it will be found to be the most profitable way of making the orchard ground pay for itself, until the fruit crops come in, that one can adopt. The trees also will be models of health and vigor, and when they commence to bear will do so regularly and abundantly. This is an epitome of what the *GARDENER'S MONTHLY* has taught, opposed as it has been by the excellent men of the old school of culture. No one who follows it will ever abandon it for any other. It is costless comparatively, from the first to the last; and pays its way at every step.

The dwarf fruit trees we would plant on the same system, but six instead of ten feet apart. Few soils are too wet for fruit trees. Only in wet soils plant on the surface, and throw up the earth over them from between so as to make a

ditch or furrow to carry away the surface water. On the plan of annual surface dressing which we have outlined, the feeding roots will thus always keep above the level of standing water; and when they can do this it will not hurt the trees even though the tap roots are immersed in water for a half year.

Now, there are some parts of the country where the soil is cool, other parts where manures for top dressing are scarce, others where vegetables among trees would be very profitable in comparison with a crop of hay, or perhaps occasionally some very good reason why the outlines here sketched out should be departed from. Successful fruit culture does not consist in following any person's plan, but in having judgment enough to make a good rule bend to suit the circumstances about one, or the special object desired.

Celery as it grows will require earthing up, and Endive successively blanched; but the main business of the month will be preparations for housing the root crops for the winter. Beets are generally the first thing attended to, they being the most easily injured by frost; carrots salsify and parsnips following. The latter are never really good until they have been well frozen; and many leave them entirely in the ground, taking them up as wanted for use. We prefer taking them all up and packing them in sand or half dried loam, in a shed or cellar, which may be kept just above freezing point; yet the cooler the better. If suffered to be in heaps they heat and soon rot. In the same situation Endive and Cape Brocoli may be preserved to the end of the year; they are taken up with a small quantity of earth adhering to them, and placed side-by-side together. Tomatoes, if dug up also, and suspended, roots upward, in such a situation will keep good a long time; but this must be done before the least frost has touched them. It is a wise plan to sow a little more Early York Cabbage early in the month, as in fine mild winters the September sowing grows too forward when protected. A very slight protection is better for them than any elaborate affair, the sun principally injuring them. The same remarks apply to Lettuce intended to be kept over winter for spring use, though the sun is less destructive to them than to the cabbage. But many good growers who have no interest in being extra early, do not sow early cabbage till Spring.

COMMUNICATIONS.

PROTECTION OF TREES FROM THE SUN.

Read before the Nurserymen's Convention, at Chicago, June 17, 1880.

BY CHAS. D. ZIMMERMAN, BUFFALO, N. Y.

Trees suffer more from the effects of the sun, directly and indirectly, than the majority of tree-planters will acknowledge or comprehend. Very often the unhealthy condition of trees is attributed to various causes, such as "poor stock"—fault of the nurseryman—soil, insects, etc.; whereas the first cause of trouble is improper exposure to the sun. Young trees are trimmed up by cutting off all the side branches by the nurseryman in order to give the tree a good appearance, which is very well as long as the tree remains in the nursery, for there it is protected by its neighbors; but when set out in orchard rows, the long smooth stem will suffer more or less by the exposure to the sudden changes of temperature caused by the sun, and unless well staked are very apt to lean over from the winds, in which condition the sun's rays strike the tree more directly, causing the bark on the exposed side to decay, and making it attractive to insects. Apple trees in this condition are very sure to be attacked by the flat-headed borer (*Chrysobothris femorata*, Lec.) The insects and sun together soon ruin a tree.

In reference to Apple trees especially, I think they would be healthier and longer lived if we would copy after nature more than we do. For example, if we allow an Apple tree to grow up from seed, never turning or crowding it, we will have nothing more than a large bush; but, you may depend upon it, there will be no sun-burn on that tree, there will be no flat-headed borers, no sap-sprouts, it will not lean at an angle of 45° from the wind; and if on average good soil, will be a perfectly healthy and long-lived tree.

Now I do not propose that we should grow our trees in this way, but I do think that we might come a little nearer having perfect and healthy trees by elevating the art of tree pruning and by copying to a greater extent from nature. Dr. John A. Warder says, in one of his works, speaking of nature's pruning: "She prunes and trains magnificently, and gives us models for imitation."

As far as I have observed, in nature the healthiest trees are those on which the side branches have been allowed to grow. When a grove of trees grow up by an undisturbed effort

of nature, they will effectually protect themselves against the sun and winds; those on the exposed sides remain shorter and retain their side branches, so that the branches of the tallest reach down to the next shorter, and these in turn to the next, and so on down to the shrubs, and these to the grass. Why is this so if it is not for the protection from the sun and winds. If the short trees and shrubs are cut away the rest will soon decay, not on account of the wind alone, as we are usually told, but by the sun also; for I claim that the exposure to the sun has as much to do with it as the winds.

Where trees must be trimmed up high, I would allow the side branches to grow (although they might be kept short) until the top was large enough to shade the trunk, not from the summer sun only, but from the winter sun as well, which is probably the most injurious.

SPLITTING THE BARK OF TREES.

BY H. LUMBARD, OAK PARK, ILL.

I wish to give my experience in regard to splitting the bark of trees.

I have on my place several Early Richmond Cherries, and tried the experiment of slitting the bark on about half of them. Result, every one that I slit is dead; the others that were not cut are thrifty and doing well, every one of them. Would advise any one wishing to try the experiment, to go slow at least on Cherry trees.

My conclusions are about as follows: I have six dead facts and six living facts. If I had left them alone, I should have had twelve living trees, but I should not have known what I know now, viz.: That splitting the bark will sometimes kill trees, and I would not slit the bark on the remaining six for the value of the trees, feeling sure that it would kill them. Perhaps if I had commenced on them when they were young they would have got used to it. I do not know and cannot prove it. I have given you solid facts and my conclusions.

"Facts are stubborn things," and what may be a fact in regard to one tree may be death to another in a different locality. I have often split the bark of Apple trees without any apparent injury; the wound always healing and doing well.

I will state that the trees did not all die the first year, but they have dropped off year after year, until this year the last one is gone. It is four years ago that I slit them.

STANDARD AND OTHER GOOSEBERRIES.

BY H. G. HOOKER, ROCHESTER, N. Y.

Inquiry is made in the MONTHLY as to the success of the Standard Gooseberries introduced into this country during the Centennial year. Some of the standard gooseberries which were exhibited on the Centennial grounds, are now growing with me and others near by where I can see them. The result of my observation is, that I cannot see that they possess any special merit, except as a curiosity.

Currants and Gooseberries will grow and bear heavy crops when worked high (or low) upon the Missouri flowering currant stock, but the stock is not stiff, and always requires a stake to maintain it upright. The fruit is not better or less liable to mildew when worked in this manner; and such plants must always be very high priced, as they are difficult to work and the stocks need age to make them stout enough to stand well. They are curious, especially when Currants and Gooseberries, both red and white, all appear in one head, upon a tall stem, and that is all the recommendation they will bear.

OTHER GOOSEBERRIES.

The experience of some years enables me now to speak of some American varieties of Gooseberries as grown here in Rochester somewhat extensively.

The *Downing* holds a good place as a strong and very healthy grower, never, under any circumstances failing to produce a very abundant crop; without a trace of mildew and with very remarkably good foliage. The quality of the fruit I cannot call best.

Smith's Improved never mildews, is as large or larger than *Downing*, of better quality and equally productive; but the plant is not as strong a grower, needs higher manuring and some pruning; also is more liable to lose its foliage more or less before the fruit is past.

Hudson, raised by Joseph H. Ricketts, proves with me the finest in quality of all the Gooseberries I have ever tasted. In size it is larger than either *Downing* or *Smith's Improved*, and has never shown a trace of mildew; which, along with its style of growth, leads me to the conclusion it must have come from the seed of American or cross breed stock. The foliage is thick and glossy, but liable to drop some before the fruit is all past.

New Seedlings. I am this year fruiting a quantity of seedlings raised from several American

varieties, with the following general results: Seedlings from the Downing follow the parent so closely that the variations are slight, one only going back to a wild dark fruit, with thorns on the berry. Seedlings from Smith's Improved also, in most instances, are similar to the parent; but a few are colored, and one, a fine round, red berry, seems to promise excellence. Seedlings from Houghton vary somewhat in color, time of ripening, and vigor, but not much improvement in size.

Seedlings from Mountain are, I think, more interesting and hopeful than the others, because along with the large growth, comparatively thornless shoots, and immense crops, some of the seedlings show larger size, finer quality and earlier period of ripening than the old Mountain seedling. I mean to further test some of the more promising ones, hoping that this very cheaply grown fruit may one day be found to reach higher than it now does with those who are critical in their taste, and look for early Gooseberries to be as firm as Delaware Grapes.

THE TYSON PEAR.

BY A. C. L., MADISON, IND.

It seems strange that this delicious Pear should receive so little notice. Mr. Downing and Mr. Field give a mild description of it, without any peculiar qualities to recommend it. In this climate it is only surpassed by the Seckel, and when properly grown fully equals that Pear. It is by far the best early Pear—ripening a month earlier than Bartlett or Seckel. The objection to the Tyson is its tardy bearing, but this may be obviated by double working on some strong growing variety, taking care to get scions from a bearing Tyson. It begins to ripen July 15, and continues until last of August. I have specimens of it to-day that measure nine inches in circumference.

EDITORIAL NOTES.

LOCAL NAMES.—The cut-flower folks have christened the Amaryllis "Cape Bell." In the south the Savin Juniper is called "Cedar." A cultivator down South says for the first few years cultivate your orchard by planting "pindars" among your trees. But what are pindars?

INSECTS IN 1880.—This has been a remarkable season. There have been some Curculio, but Plums that have been barren for years, and

Apricots that no one in many years past has seen a fruit on, have borne freely near Philadelphia.

NEW SOUTHERN PEACHES.—The following are the names of some of the newer candidates in the southwest: Boggy's Mammoth, Infant Wonder, Steadly, Miss May, Governor Garland, Nelson Cling, Mitchell's Mammoth, Brice's Early, Ashby's Early, Baker's Early, Hyne's Surprise, Shipley's Late, Austin's Late, Early Lydia, Mrs. Brett, Great Mammoth, Great Western. It is getting hard for an editor to keep up with Peach knowledge.

ORIGIN OF THE RIBSTON PIPPIN APPLE.—Though this is an English Seedling, it is of French descent. Seeds were sent from Normandy in a letter to Sir Henry Goodrich, in the early part of the last century, and from one of these trees at Ribston Hall, the Ribston Pippin came.

FAMILY FAVORITE PEACH.—This promising Texas Peach is thus described by Mr. Munson: "Family Favorite, seedling of Chinese Cling, but a freestone, two weeks earlier, of finer color and quality, firmer, not so liable to rot, very large, tree exceedingly vigorous, productive and a much surer bearer than its parent. Originated in Fannin County, Texas, by W. H. Locke; has fruited five years, will surely become a leading variety."

MEALY BUG IN HOTHOUSE GRAPES.—The *Journal of Horticulture* says: "If vineries are not badly infested, the vines should have all the loose bark removed after pruning, and be well washed with Fir tree oil at the rate of half a pint to three gallons of water, or with Gishurst compound. Paraffin oil is certain death to the mealy bug, should only be employed by experienced hands upon vines, for it will kill the vines as well as the bug if not judiciously applied. It is good for cleaning the woodwork, but must be diluted with water, and should be applied with a brush. The surface soil, if the border be inside, should be removed and fresh soil supplied. The walls should also be washed with hot lime mixed with paraffin oil. Even if every part of the house and vines is thoroughly cleaned the pest will make its appearance again after the vines have started into growth and the season has advanced. The early spring or summer, according to the time when forcing commences, is when the insects increase. Their destruction can be accomplished when they are first seen creeping upon the vines, which should be examined sedulously and perseveringly. If left until

the foliage expands, the work of searching for the enemy is useless; but if the search is thorough and continuous early in the season, and the insects are killed as they appear, they will considerably decrease, and in a season or two the house will be entirely free."

ARTIFICIAL PINE-APPLES.—The Pine-apples of nature, as we get them in our markets are pigmies in comparison with the work of a skilled English gardener. The *Journal of Horticulture* says: "A correspondent desires to know the weight of the heaviest Pine-Apple that has been grown in this country, with the name of the grower and the variety. We remember Mr. Fleming of Trentham exhibiting in the Regent street rooms of the Horticultural Society a fruit of Providence weighing 14 lbs., and one of the Ripley Queen 7 lbs. 10 ozs. He afterwards cut a fruit of the Queen weighing 8 lbs. 11 ozs. We do not name them as the heaviest fruits recorded, but they are worthy of mention, and we shall be glad if any of our readers can give particulars of heavier fruits. As an instance of successful Pine culture it is recorded that a Mr. Baldwin, who was gardener to the Marquis of Hertford at Bagley, cut thirty-six fruits of Providence in 1822, which weighed 280 lbs. 4 ozs., the largest fruit being 11 lbs. 8 ozs. Mr. Bailey of Sharde- loes has, we believe, also grown fruit of about the same weight."

THE SEA RADISH.—At a recent meeting of the the Edinburgh Botanical Society, the President exhibited two first and second year's plants of

Raphanus maritimus, showing that it is at least of biennial duration. It is said by some to last for three years, although it has been questioned if it is really distinct from the strictly annual Raphanus Raphanistrum. In Withering's *Botany* it is stated that the late Dr. Walker, Professor of Natural History at Edinburgh, so long ago as 1753, deemed it preferable to Horse Radish for the table, and found that cattle were fond of its herbage. When the young roots are cut into very small pieces and sparingly mixed with green salad, such as Lettuce, Mr. Gorrie obtains a very decided and agreeable Radish flavor. These roots are obtainable in perfection at periods when the common garden Radish is not in season. One of the specimens was fully four feet high and had not had room to spread. The original stock had been brought from the coast of Bute and Wemyss Bay in 1877. One of the specimens in Mr. Gorrie's garden measured on August 24, 1878, 4 feet 2 inches high, while the spread of its lower branches was 8 feet 5 inches in diameter. This plant might profitably be cultivated for cattle feeding on exposed sandy coasts.

BIG CUCUMBERS.—The *Garden* is wondering what "on earth" are big cucumbers good for; and then it profanely remarks: "Give us a big Cyclamen or big Cauliflower if you like, or even a gigantic Long-pod; but what is the good of a Cucumber seemingly as large as an Egyptian mummy?" The stool of repentance will no doubt be brought out for this infidelity to all the old gardeners hold sacred.

FORESTRY.

CUMMUNICATIONS.

FORESTRY IN NORTH AMERICA.

The Pertinent Laws and Regulations, and the Future of North American Forests.

BY JOHN BOOTH, KLEIN FLOTTBECK, GERMANY.

Translated for the GARDENER'S MONTHLY by G. W. DE B.
(Continued from page 278.)

What possible benefit can be derived in view of such a condition from laws that try to further the planting of woodland by free grants of the necessary land? The "Timber Culture Act," of 1873-74, gave to every one who planted forty

acres with forest trees, and kept them in proper condition for the next ten years, one hundred and sixty acres of government land free of all charges. The trees might be planted at distances of twelve feet, and that alone made the law ineffective, for even the particularly favorable soil of America could not grow a forest with such distances. As early as 1876-77 this law was amended; but of what practical use could, under the most favorable circumstances, the planting of Poplars and other soft-wood trees be, when the organized spoliations by thousands of timber thieves, with subsequent burning of hundreds of square miles of the most valuable timber, were

not stopped! Several of the States, notably Colorado, Connecticut, Dakota, Kansas, Maine, Michigan and Iowa, passed local laws for the protection of forestry, with more or less the same regulations as the "Timber Culture Act," with what success the following example will suffice to show. The law in Iowa granted a partial immunity from taxation for every acre planted with forest trees. Not quite a year later an impartial American reporter writes: "Large sums have already been paid the officers entrusted with the official survey of such land, for which the owners claim exemption from taxation, the extent of which newly planted woodland is given at 60,000 acres, representing a value of over six million dollars. No one can seriously assert these figures to be correct; still, as in all similar cases, the claims of the ring will be satisfied. It is indeed a brand on our legislation that with us almost the only effect of laws, designed to promote the public interest, is the creation in each case of an army of worthless and thoroughly incompetent officials." It has been the same in all the States which had to order a survey of the newly planted (?) woodland; hundreds of thousands of dollars have been expended for worthless officials, and already an abnegation of the pertinent laws is thought of.

Not for the purpose of offering statistics, but simply to give a picture of the vast dimensions these forest fires and devastations assume in free America, we beg to be allowed a few examples of their extent. The "Report of the Chief Signal Officer War Department," for 1872, affirms that in 1871 several thousand square miles of forests were consumed by fire in the Rocky Mountains and in the Northwestern States, a great number of lives were lost, and the damages amounted to hundreds of millions. The total amount of wood destroyed by forest fires in 1871, the same report states as exceeding ten years' regular consumption of the whole United States! Again, the "Report of the N. J. State Board of Agriculture," for 1874, states that a great number of the forest fires have been occasioned by incendiary wood-cutters and colliers, to whom the desired quantities would otherwise not have been sold. Professor Sargent, of Harvard, lecturing in 1878 on the present and future conditions of American forests, said: "Our 'inexhaustible' forests of the Sierra are rapidly disappearing. From a single point in the Yosemite Valley, last year, I counted no less than nineteen extensive forest fires, caused more or less by

carelessness of the herdsmen." In 1877, New York, New Hampshire, Maine, Pennsylvania and Canada were heavy sufferers from forest fires, a large part of the White Mountains being in flames at one time. In New Jersey alone 30,000 acres of woodland were consumed by fire in 1879, which also destroyed all the aftergrowth on the districts burnt in 1873. That these last fires were incendiary was proved at the time. We could fill volumes with similar figures from official American reports.

It has been proposed to pay large premiums to those who extinguish forest fires before they have assumed too large an extent; but an American authority says that by such a measure the number of fires would only be increased, as it would prove a profitable business to "create" small fires and extinguish them by well organized efforts, thus pocketing the premiums. It is impossible to get a correct estimate of the wood destroyed every year by forest fires, only that much appears certain from a number of corresponding reports that more wood is consumed by fire than even by the wholesale thefts of jobbers and rings. The *Osceola News*, Michigan, estimates the amount of wood felled on the Au Sable and Pine River in 1878-79 at 455,000,000 cubic feet, while in 1872-73 it did not exceed 120,000,000. The *Chicago Commercial List* writes about the same time: "The northwestern woodcutters, supplied with the newest and most destructive tools, are preparing for the campaign against our forests; the crop of 1878-79 will surpass all previous ones, 400,000,000 cubic feet are contracted for at the Muskegan river alone. Thus our magnificent forests are destroyed!" The total value of timber manufactured in 1878 in the United States amounted to \$500,000,000; the amount stolen by the "Timber Ring, if it could be accurately ascertained, would increase this sum at least one-third. In some States, where wood is used almost exclusively as fuel, the consumption is quite considerable. Massachusetts, for one, uses \$6,000,000 worth of wood annually (Emerson: *Trees of Mass.*), without taking any rational measures for planting and training an aftergrowth. In Maine the cutting of timber has gone even further; in many districts it has become necessary to procure the necessary wood from far off, and competent judges declare that the "Pine State," once famous for her vast forests, must, in fifteen or twenty years, be entirely bare of such. Pennsylvania, too, has suf-

fered largely,—no more of those huge trees are to be found that once adorned the forests of the Susquehanna, Monangahela and Alleghany. The forests of the Eastern States contain hardly wood enough for their proper demand. The woodless plains west of the Mississippi, are entirely dependent on the Northwestern States. The annual consumption for railroads, telegraph poles and fences is enormous.

According to the *Railroad Gazette*, 27,561 miles of railroad have been built in 1872-79, making a total of 86,263 miles for North America. The sleepers for the new roads and the repairs for the old ones consume annually the timber of 150,000 acres, besides which a great quantity is needed for the very large number of locomotives that fire with wood exclusively. The railroad fences have a total length of 125,000 miles, and 25,000 tons of wood are annually needed for telegraph poles. The total value of fences is given by the last official census at \$1,700,000,000, the annual repairs of which amount to \$198,000,000!

(To be continued.)

CATALPA POSTS.

BY G. M. ALVES, HENDERSON, KENTUCKY.

At this time there seems to be quite a "boom" in the Catalpa tree. In current literature on the subject the impression seems to prevail that Catalpa wood placed in the ground for posts, &c., is practically indestructible, so far as decay is concerned. Notably, in your July issue you quote from the *Boston Herald* an article on tree planting, in which the statement is made that catalpa wood "although soft, is almost indestructible when placed in the ground." The fact is, catalpa is by no means indestructible. Posts of it frequently decay in ten or twelve years, and at the same time they frequently last double that time, or longer. This county (Henderson, Ky.), is situated in a scope of country where the catalpa tree is indigenous, and abounds in some considerable quantity. The country was settled about eighty years ago, and from the best information the wood has been used since the county's settlement, and as a consequence information derived from this section is entitled to weight.

My attention during the last few months was particularly called to the subject. The information obtained was in general that catalpa was esteemed for posts, though not so much so as

red cedar, locust or mulberry; that there was great difference in its lasting qualities, ranging from say, ten to twenty-five years. Many farmers here say there is a yellow and a white catalpa; that the former is very durable, and the latter not durable. It appears from investigation that what is called the yellow is a mature tree, or a tree growing very slowly, and the white a tree in thrifty growth, and consequently with more sap wood; hence it would seem that the only difference lies in different conditions of growth. Investigation does not seem to decide, however, that the mature tree is more durable than the younger.

I do not undertake to account for the difference in durability of catalpa, but mention it simply as a fact. It is true that those who contemplate extensive planting should have all accurate information.

EDITORIAL NOTES.

POPLAR FOR PAPER.—In a recent trip through Southern Pennsylvania, we saw repeated handbills that "Poplar was badly wanted." We supposed that this referred to the true Poplars—*Populus*—but a friend, who had been in the paper-making business, assures us that the Tulip Poplar, *Liriodendron*, is the wood required.

A TALL GUM TREE.—An Australian paper says: "A tree 325 feet high, in the neighborhood of Stockton, Cal., has hitherto enjoyed the reputation of being the tallest in the world; but an official of the Forests Department in Victoria, Australia, lately measured a fallen *Eucalyptus* in Gippsland, which was 435 feet long. Another tree of the same species in the Dandenong district of Victoria, still standing, is estimated at 450 feet."

FORESTRY IN CANADA.—We learn from a correspondent that the movement among farmers to set apart an acre or so for timber planting on their farms is growing in popularity.

WOOD FOR PAPER MAKERS.—In the report of the Fruit-Growers' Society of Ontario, as made by the Canadian *Horticulturist*, is the following: "It was stated that in many places a demand had sprung up for soft woods, such as Basswood and Poplar, for the manufacture of pulp for paper, and that often broken land which cannot be profitably tilled could be planted with these

rapid growing trees with great profit. Many young trees of Ash, Maple, Hickory, &c., could be taken up by farmers, planted for a couple of years in nursery rows where they could be cultivated, and then transplanted to broken ground and hillsides, with great certainty of living.

QUERIES.

! FALL-PLANTING LARCH.—M., Amherst, Mass., writes: "Will you have the kindness to inform me if you have ever practiced fall planting of the

European Larch. We have a lot of seedlings that we are thinking of transplanting for forest growth and 'fall planting would save us much expense.'"

[We should not recommend fall-planting young Larches, because the frost would probably draw out such small things; but young Larches ought to be drawn out in the fall, and bedded in thickly where they can be got at early in the spring. This keeps back their early growth somewhat, and enables one to have time to plant large quantities before the leaves push.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THE APPLE LEAF FUNGUS—*Roestelia cancellata*.

BY PROF. W. A. BUCKHOUT, STATE COLLEGE, CENTRE COUNTY, PENNA.

The September number of the GARDENER'S MONTHLY contains a notice of the Annual Meeting of the Georgia State Horticultural Society, and upon the subject of the relation of the apple leaf fungus to that producing "cedar apples," you remark that "Unfortunately, little is known of the manner in which *Roestelia* works, so that no one can suggest any remedy. The fungus which makes the 'apple' on the Cedar is the *Podisoma*, and has no relation to the *Roestelia*."

That *Roestelia* and *Podisoma* are but two stages of one fungus has been the opinion of those who have carefully studied them in both the laboratory and orchard. In proof of the former, I beg leave to refer to the proceedings of the Danish Academy of Sciences, an abstract of which is given in the *American Naturalist*, Vol. II, page 557, and to Sach's Botany, page 246. The most recent of our botanical works, Bissey's and Plant's, state unhesitatingly, the general acceptance of this matter of "heteroecism" among the fungi.

Of cases coming to the notice of orchardists, that which I communicated to the February number of the *American Agriculturist* (1880), and is referred to in this meeting of the Georgia Horticultural Society, is the best, though not the only one, of which I have knowledge. In this instance the attack upon the fruit as well as the

leaf was very marked, and shows a danger, which under circumstances specially favorable to the development of fungi, may prove very great.

I believe we know enough of the nature of *Roestelia*, and the manner in which it works to suggest as a remedy, the destruction of all Cedar trees which have become infested with "Cedar Apples," especially when they are in the immediate neighborhood of orchards.

THE CLING-STONE APRICOT.

BY MISS JOSEPHINE K. KLIPPART, COLUMBUS, OHIO.

In answer to the article in the September number on the "Change of Character in a Fruit Tree," I will say that I most assuredly do mean that the tree in question is an Apricot and not a Peach at all. The leaves and fruit are not to be mistaken in the least degree for the Peach. I have been "brought up" on Apricots and know whereof I speak. During State Fair week we entertain many friends, and this year Dr. Warder and N. Ohmer—well known Ohio pomologists—were our visitors for a short time. Dr. Warder did not see the tree. N. Ohmer examined the tree, and said that the reason of the fruit changing to clings was undoubtedly the old age of the tree. Another gentleman present was quite as decided that it was the impoverished condition of the soil and the borers.

The top of the tree is covered with an abundance of healthy green leaves, and no dead twigs are to be seen. The last gentleman who examined it advised us to give it a good top dressing, and throw up a bank of ashes and a little salt around

the trunk of the tree to get rid of the borers.

Many thanks for your kindness in telling me how to raise a young tree from the old one.

EDITORIAL NOTES.

SEDUM MEEHANI, *Meehan's Stone Crop*.—In the Proceedings of the American Academy of Arts and Sciences, issued September 1st, Dr. Asa Gray has the following:

"SEDUM MEEHANI. Glaucescens, 2-3-pollicare, radicibus fibrosis perennans, foliosum; foliis teretibus (subsemipollicaribus, floralibus minoribus); ramis calycibus ovarisque tenuiter glanduloso-hirtellis; floribus omnibus 5-meris; petalis albis (lin. 2 longis) lanceolato-ovatis tenuiter acuminatis calycis lobis ovatis plus duplo longioribus.—Utah, on City Creek, north of Salt Lake City, at the base of the mountains, collected by John Reading, the live plant communicated by Professor Thomas Meehan. It is so desirable to connect in this way the name of Mr. Meehan with the botany of the country which he has done so much to illustrate, that the actual collector will probably join us in wishing it to be commemorated by this pretty little species of *Sedum*. It will not make much show among Meehan's 'Flowers and Ferns of the United States, Illustrated,' of which four goodly volumes have already appeared under his editorship; but it is to be hoped that it will find a place in the fifth volume."

We may note in addition to this account by Dr. Gray, that besides the beautiful glaucous color which will make it a very desirable plant for vases, rock work, and other places where a dry and open spot has to be covered, it has the unusual advantage of continuing a long time in flower. The first flowers were open on the 11th of June, and at the time of this writing, September 7th, there are still some flowers out.

As no doubt the pretty species will be demanded by cultivators, and the dried specimens to botanists, we have suggested to Mr. Reading that he make another journey to the locality for plants, and supply them to applicants, mail free, for 50 cents each, and next summer make some dried specimens for botanists at 25 cents each. If he get enough applications it will probably cover his time and expenses. Mr. Reading is an enterprising florist and nurseryman of Salt Lake City, and put up the first greenhouse ever built in Utah.

THE ANNUAL RINGS IN TREES.—An interesting observation on the relation of the age of Gum trees in Tasmania to the number of concentric circles in their trunks is recorded in the *Journal*

and *Proceedings of the Royal Society of New South Wales*. It is given on the authority of the Rev. J. E. Tenison-Woods, in an article on the forests of Tasmania; and the information was obtained from a Mr. Hill, proprietor of an extensive saw-mill at Honeywood, whom Mr. Woods designates as a perfectly reliable authority. This gentleman had observed that the gum trees shed their bark twice annually; and having heard at a lecture on the growth of trees that a ring of wood was added each year, he was induced to test the truth of this statement. There was a Blue Gum tree in his garden at Hobart Town, the age of which he knew with certainty, as his brother planted it eighteen years previously. He felled it and counted the rings, and found them to be thirty-six in number, or two for each year.

As many of the Blue Gum trees first planted in California are now being cut down, and their exact ages known, we should be very glad if some correspondents will send us accounts of the number of rings they find. It may serve to throw some light on the disputed ages of the big trees.

GIRDLING TREES.—In Australia they do not call it girdling, but "ringing" trees, when they are talking of clearing off the original forest or "paddocks." The trees often sprout below the "ring" as our Chestnuts do, but sheep eat the sprouts as fast as they appear, and for want of foliage the whole stump dries.

HONEY DEW.—Of course we knew that many intelligent persons of the olden times believed "Aphides" to fully account for all appearances known as Honey Dew, but we did not know that some of the leaders in modern thought in England clung to this effete notion. It appears that Sir John Lubbock holds to the idea that all Honey Dew is merely excretions from Aphides, and this has induced an intelligent correspondent of *Gardening Illustrated* to give a piece of his mind, from which we break the following crumb: "The sooner Sir John Lubbock and other writers correct their erroneous impressions the better it will be for science. It is not creditable to the latter that at this time of day there should be any doubt on such a simple matter."

THE OX-EYE DAISY.—As an illustration of the unstability of popular names of plants, we may note that our Ox-eye Daisy is known in Scotland as "Horse-Gowan." But the botanical name is hard—*Chrysanthemum leucanthemum*.

THE ENGLISH SPARROW.—It is a remarkable fact that although the English sparrow has been the companion of cultivators for centuries, the agricultural and horticultural papers of that country are discussing as warmly as we are whether he is more friend than foe. If they don't know, we may as well give it up.

NATIVE CALIFORNIAN TOBACCO.—Prof. Rothrock is of the opinion that the early natives of California smoked the leaves of *Nicotiana Clevelandii*, A. Gray—a species only quite recently described. It is a small plant with small flowers, and it was found by Prof. Rothrock only in association with the shell heaps which occur so abundantly on the coasts of Southern and Central California. He states that perhaps of all the remains of extinct races so richly furnished by that region, none were so common as the pipes, usually made of stone resembling serpentine. The Tobacco of *N. Clevelandii*, Prof. Rothrock found by experience to be excessively strong. —*Gardener's Chronicle*.

CHANGE OF HABIT IN CREATURES.—It is not as often recognized by naturalists as it might be, that any living thing will change its habits when it becomes its interest to do so. Insects generally have preference for some particular species of plant, and are often so associated therewith that naturalists are incredulous when told of a certain species attacking other things. Yet we know how the Colorado potato beetle has taken to *Solanum tuberosum* when the stock of *Solanum rostratum* failed, and surely numerous such instances must be common. While in the Iron Mountains in Tennessee recently, the writer saw a species of *Scutellaria* which had every leaf skeletonized precisely as the elm is. Looking for the insect, he found what appeared to him to be a species of *Galereuca*, closely resembling the elm beetle. Not considering himself an entomologist, he mentioned his suspicions to a distinguished student in that branch of science, but was told "it was impossible it could be that beetle, as it fed only on the elm." Yet it seems unlikely any insect would starve. If some found themselves in a region like this, where there were no elms, why should they not look up something else to feed on? That there is a change of habit continually going on in animated nature is beyond question. Besides the case of the potato beetle, we often see it in birds. There were no chimneys in America once for swallows to build in, and the English sparrow is another illustration.

In the *Country Gentleman* of Aug. 12th, a correspondent says:—

"The English Sparrow will not build in the foliage of trees, as most birds do, but quite often builds in holes in old trees. A dead tree is preferred, but they will build in a hole in a large tree, even though full of foliage. I have often, when a boy, found several nests in an old tree. Ivy seems to be their especial delight for an abode, and to breed in. Many houses overgrown with ivy, seem literally alive with sparrows."

This is true enough of the sparrow in England but it is not true if the "will not" is intended to mean "under any circumstances." In the public squares of Philadelphia, they have taken to building in the foliage of the trees. There are thousands of these nests through the city squares. They make fearful bangles of nest building it is true. They use as much straw to make one nest as other birds do to make a dozen, and so ungainly, too! They look like huge wisps of straw stuffed into a crotch after having been used to wipe a pair of muddy boots.

The changes going on in nature are wonderful. Not only changes in habit, but changes in form and changes in every character. The man who believes that everything in the world has remained just as it was in the beginning, scarcely uses his eyes as he might do.

GERMINATION OF SEEDS.—It is a well-known fact to all who have had experience in sowing tree seeds, that the period required for germination is of the most uncertain character. Sometimes seeds sown will germinate the same season, and then again in another season, they will remain in the earth until the next before they sprout. But even when they do sprout a large lot will remain over until the succeeding year, and it is not uncommon for some to appear several years after the first seedling appeared. The why of all this has been a puzzler. The following from the *Scientific American* indicates that the least mature are the first to germinate. It does not strike us as a satisfactory solution, as, in view of the facts we have given, it would seem as if the vast majority were the least mature. But we give it as recording the current views of the day:—

"Many instances have been put on record by different observers of unripe seed germinating, and several botanists have conducted extensive series of experiments in raising plants from seeds in different stages of development. At first sight it seems rather surprising that an imper-

fectly formed embryo should grow into as vigorous a plant as a mature one; but, when we understand the general plan of growth in plants, the phenomenon is intelligible. Thus, ferns actually develop from a single detached cell. This property of premature germination may be taken advantage of in practice in propagating plants that do not fully ripen their seeds in our climate. A rather longer period elapses before unripe seeds actually germinate, but frequently the progeny is equal to the best from mature seeds. Formerly it was supposed that only ex-albuminous seeds would germinate when unripe, but M. Sagot, a Frenchman, succeeded in germinating green grain of wheat in which the albumen was soft, semi-liquid and milky, and several other experimenters have raised different cereals from grain collected a fortnight to three weeks before the crops from which it was taken were ripe. Although the practice of sowing unripe seeds is not likely to become general, and would not be profitable under ordinary circumstances, it might be useful to know in the case of a rare plant suddenly dying before its seeds were mature, that there was a possibility of their germinating, and thus preventing the loss, may be, of a valuable plant."

QUERIES.

GENISTA TINCTORIA.—Mrs. Mary P. G., Lynn, Mass., writes: "The golden-flowered plant which

J. H. D., of Peacedale, R. I., saw at Salem, Mass., is the *Genista tinctoria*, as you suppose. It grows abundantly in the rocky hills of Essex County, and when in bloom lightens and brightens the landscape wonderfully. I have never heard it called "wax-wort," but can understand how it might get that name from "wood waxen," which is given by Wood as one of its common names. I thought you might like to know that you were correct."

[To this obliging note we may add that the editor had the pleasure of a brief ride about Salem recently, and saw the plant in great abundance everywhere, as was also another English plant, *Leontodon autumnale*, the pretty yellow flowers of which were abundant everywhere. It may be also noted that the Buttercup which prevails in that part of the world is *Ranunculus acris*, and not *Ranunculus bulbosus*, which is the common Buttercup of Pennsylvania.—Ed. G. M.]

CALADIUM WILD.—J. M. H., Houston, Texas, says: "I had a laugh some months since at a statement in the *GARDENER'S MONTHLY*, taken from a German paper, that *Caladium esculentum* was growing indigneous on the Brazos in Texas. While aquatic plants of many kinds grow in great profusion in the lakes and swamps on the Brazos river, I have failed to see anything very nearly like *Caladium esculentum* after a look of one hundred miles or more."

LITERATURE, TRAVELS ^{AND} PERSONAL NOTES.

COMMUNICATIONS.

GARDENERS AND SITUATIONS.

BY J. B., FREDERICTON, N. B.

Referring to the articles in May and August numbers of the *GARDENER'S MONTHLY*—I for one would heartily endorse your editorial remarks. The Scriptures teach us to do good to all men, especially the household of faith. Now we, as gardeners, should do good to those of our own occupation. It is our duty to help each other, either by advice or in other ways suggested by our mutual needs. It is evident that the supply of gardeners far exceeds the demand, both here and in Europe, especially England. Ten years ago a private gentleman advertised in the *Gardener's Chronicle* and had fifty applicants. The advertiser generally gets the worst man in the lot. Men are like merchandise in this respect, when the supply is an overstock of either it makes the article cheap and a drug in the market.

I have served some twenty years in commercial and private places; have often being condemned by young men for spending too much time in what we term "the trade." My present remarks are more especially intended for young men and for their good. Having saved a few pounds about home, I started to improve myself in larger cities than my native place, and in due time I arrived in the city of London. I found my way to Laing's Nursery, Twickenham, near Kew. From there to Lord John Chichester, Cam-

bridge House; thence to Kinghorn's Nursery, Richmond; thence successively to Walford's, Reeves & Bros., Acton and Notting Hill, and Carter & Co.'s nurseries, staying a year or two in each place, as it suited me; my employers understood that my aim was to improve myself. Being offered a free passage to Fredericton, N. B., with a situation for one or more years, I accepted it, wishing for a change. At the end of my first year, I desired to see Boston, and made my way to the largest floricultural establishment. I sought an interview with C. M. Hovey, Esq., whom I shall ever respect for the kindness he showed me, a stranger and foreigner. He often gave employment to such when he did not need them. I was in their employ some two years, which I think I may say proved satisfactory on both sides. Desiring again a change, I spent a year in the employ of W. C. Strong, florist and nurseryman, Brighton, Mass. Having a good private place offered me at Fredericton, N. B., I accepted and returned to that town, and held it nearly three years. Seeing an opening here for business, a gentleman of means offered me a loan of five hundred dollars at reasonable interest, for buying land, building house, and putting up a little glass. He also wished me to pay some attention to his garden and greenhouses. His place was not large enough to keep a gardener the year round. The plan proved very satisfactory to both; and now I am in a position either to work or not when not busy, or reserve it for something to fall back upon.

Now I do not wish to be understood as boasting. I am not in New York, Philadelphia or Boston, but in poor, cold, long-wintered New Brunswick; and I have reason to believe I could do far better in more stirring places. Service is but service after all. Some employers are very unreasonable; or worse still, their wives,—when they come and snatch the plant out of your hand to show you how to plant it. Such conduct ill becomes a lady. I do not mean to say the employers are always in fault and the gardener right. The contrary is no doubt often as true. Many gardeners, in my own experience, are far better at talking and writing than working, yet make woful mistakes in practice. Such as I have reference to had better keep employed by rich men. Don't start for yourself or woe be to you. But those who can make a bouquet, wreath or cross quickly and tastefully, grow plants of any country or clime, or propagate them, lay out a garden, or make a croquet

ground, or show an attractive example in the laying out and planting of the ground under their own special care; these are the men who have served so well that they may start for themselves, if a promising opening presents itself.

Don't tell the people what wonders you have done or are going to do. Example goes a long way, and is the best means of educating the people up to a higher standard of horticultural taste. When people come some distance to look over your fence at your well laid out plot and well arranged flower beds in harmonious variation of colors, or in winter, at your Roses, &c., under glass, you will have the best class of people seek for your society and advice, and copy your ideas. They will rely upon you; pay you well to build them rockeries, arrange their greenhouses and make them lists of trees, plants, shrubs, &c. They will build up your trade.

Your remarks, Mr. Editor, as to some gardeners and gardening, are too true. Their slatternly plants, flowers, and their greenhouses scarcely fit for a pig sty, are not congenial to the principles and qualities they are supposed to represent—love, joy, faith, innocence and purity.

There is another important matter about commencing business. Many begin in too large a way, and go in debt to start too largely. Creep before you walk. Keep down expenses until you see what you can do, and what demand there is. Aim at having just what the people want. Always keep a lookout at what others do successfully. Utilize every moment of your time to advantage. It does not pay to do without horticultural papers any more than moral instruction. Let theory and practice go together. Be thoroughly industrious in your own place. Act square with all you deal with. Don't be mean in any way or your business will die a natural death. A bouquet or plant occasionally thrown in does not lose anything. If you possess most of these characteristics be courageous; I will risk you making a living.

NOTES AND QUERIES—No. 17.

BY JACQUES.

One of the greatest sources of enjoyment resulting from the possession of a garden is the endless variety which it affords, both in the process of vegetation as it goes forward to maturity, dormancy or decay, and in the almost innumerable kinds of plants which may be raised even in the smallest garden. Add to it a small greenhouse

—what a source of pleasure and instruction does it not hold out to the Amateur? Exactly in proportion as the out-door work becomes less urgent, the in-door operations become more numerous. The amusements and the products which a small glass-house affords in the hands of an expert or an ingenious amateur, are almost without end.

Copper in Plants.—Observations communicated to the Academy of Sciences through the distinguished chemist M. Bertholet, show that all plants, large or small, grown on primitive rocks or on soils directly derived therefrom, contain copper diffused through their tissues in quantity sufficient to be detected when the ammonia test is applied to quantities as small as one gramme (15 grains) of their ashes. In 128 samples of white oak-wood from marly soil copper was found in like manner, but in a less proportion. In plants from magnesian limestone the results varied very much, and in those from highly calcareous soils no trace of copper was detected when quantities of 100 grammes were tested.

The Botanical Index gives the following dimensions of large trees growing in Indiana: A Chestnut 22 feet in circumference, two feet above the ground; a Sassafras 3 feet in diameter, and for more than sixty feet clear of limbs and knots. The giant is a Sycamore 48 feet in circumference. At 28 feet it branches into three or four limbs, one of which is more than 5 feet in diameter.

It is of interest to record that the grand Burnham Beeches, with an area of 120 acres, have been purchased by the Corporation of London. No one who has seen these grand trees can cease to remember them. They are in the vicinity of Windsor, but nearer State Park, the residence of John Penn. A recent writer even points out the tree alluded to by Gray in his immortal poem. The heads cut off by successive generations, the trees have grown at the butts and roots, which latter cast their fantastic limbs so high. The place is to be preserved for the Londoners, who may wish it was nearer, being twenty miles distant.

It is a singular fact that the Island of Corsica has some sixty species of flowering plants peculiar to it, while the British Isles possess no single kind which is not also found elsewhere. Yet the climate and soil of Corsica have no corresponding singularity.

The Woodbine is only another name for Honey-suckle, but the Eglantine is the Sweetbriar. The bank on which Titania slept was "Quite overcanopied with high Woodbine, with sweet Musk-Roses and with eglantine." Tennyson, in the *Talking Oak*, speaks of

"The pressure thrice as sweet
As Woodbine's fragile hold."

The vine trains round the wood with little flexibility.

The following is curious, and too good not to record: "The Marquis of Bute Colonization Scheme has been very successful. He introduced a small colony of beavers into an isolated pine wood near Rothesay, Isle of Bute. The place was walled round, so that they could not escape, and through what is known as the beavers' park there runs a roaring mountain stream. This they soon dammed up, completely altering the appearance of the place. The Duke of Portland is about to make a similar experiment on one of his Scotch estates. The Rothesay beavers, on being transferred to their new quarters, at once began sawing or gnawing down the trees in the wood. This operation they rapidly effected by the diligent exercise of their keen, chisel-like teeth, which cut out a wedge-shaped gap, causing the tree to eventually topple over by its own weight. These trees they use for damming, standing as they did close beside the river, and the remarkable intelligence of the animal is shown by the fact that they always caused them to fall just in the right spot, requiring no further shifting."

A material of great interest to the public not yet utilized among us, is the Bamber. Its merits are very striking; light, strong and cheap, it is adapted to many uses not yet thought of; for instance, it is light beyond any other substance that is so strong. It might be made into carriages for summer travel, and probably is well adapted to many parts of railroad cars, but especially for street roads. Gigs, &c., made partly of it would be light beyond precedent. We commend the subject to those interested in cars and other vehicles. There may be millions in it. Who will be the first to avail of this wonderful, light and cheap material?

Natural History.—The squirrel is extremely wise. Given a three inch post, the squirrel can always keep out of sight. You may go round and round, but it will always be "on the other side." The brain of an ant is believed to be the most

intelligent atom extant. The wasp, says *My Indian Garden*, is always angry, and the angriest creature alive. But did the writer ever try a nest of hornets? They are eternally out of temper, says Christopher North. *Chambers' Journal* has many curious articles on the animal world. In a late number, a writer commemorating a favorite dog, has the following slip in grammar: "Juno soon became so identified with us, that she did not care to associate with any other dogs."

EDITORIAL NOTES.

HORTICULTURAL INFORMATION.—One of the great innovations in horticultural literature by the *Gardener's Monthly* at its establishment was the introduction of numerous small paragraphs instead of making up the whole magazine of a few long and exhaustive articles. It is always well to have a few of these, and we take care to always have some complete essays on various topics. It is interesting to note that though we give an honored place to these, there are still a great variety of smaller paragraphs. In a recent issue where we had to give place to some lengthy matter on the extremely important topic of steam heating, the number yet contained ninety-eight headed paragraphs. A correspondent was curious enough to compare our magazine of that issue with a popular European one, and after allowing for differences of typography found that it would take thirty-seven pages of the European to give as many paragraphs as we gave in thirty-two.

But we note in all serials—agricultural, horticultural and scientific—there is this commendable tendency to pithy paragraphs. People have not time for dissertations in these days. They look for the greatest number of facts in the fewest possible words.

THE LATE ROBERT BUIST—An Ohio correspondent pays the following tribute to the memory of Mr. Buist, and it is more valuable as coming from one whom we suppose never expected to see it in print. We are quite sure there are hundreds in the country who received their first American encouragement from Mr. Buist, who will wish to echo the sentiments of gratitude here expressed:

"When we see the shining lights of usefulness extinguished one by one around us, we are apt to recall the words long ago uttered, 'Night cometh when no man can work.' Little did I

think the night was so nigh, or the lamp of life so near exhaustion which once shone in the face of my old friend, Mr. R. Buist. His work is done, and well done. His mission was noble and useful while with us, and the great good he did will live long after you and I and the rest of this generation will have passed away. 'Rosedale' was where I was first employed in this country, between twenty and thirty years ago. In the many mutations of life to which my lot has called me, none will linger longer in memory than the days I spent at 'Rosedale.' Hundreds of worthy, industrious and intelligent horticulturists from over the sea first found a home and employment at Mr. Buist's, and through his influence were put in the right way to enjoy 'life, liberty and the pursuit of happiness.' Their name is legion, who have been permanently benefited in worldly circumstances through the direct aid of Mr. Buist. Three times have I returned to his nursery in the course of my calling, when the world used me less kindly elsewhere. Well do I remember his last words when leaving him each time, after bidding me adieu: 'Remember there is always a place for you here if you wish to come back again.' Both he and his family showed me always the greatest respect and kindness."

WILSON'S SCHOOL-HOUSE.—The *Oologist*, referring to "our illustration of Wilson's school-house, says:

"Grossart's *Life of Wilson*, 2 volumes, 8 vo. (Paisley, 1876) contains an engraving of Wilson's school-house, about which the editor states: 'It is with very special pleasure I am enabled to give here an engraving (after a photograph) of the humble school-house within which Wilson, for many years, taught and dwelt. I have reason to believe that it has never before been engraved. It is now situated within the shadow of Philadelphia.—G.' Grossart may be right in his statement that the school-house had not previously been engraved. But Wilson certainly never 'dwelt' in his school-house, at least so far we have found no record of such fact.

"But we do find that at this time he boarded with a Mrs. Leach adjoining the 'Sorrel Horse Hotel,' a painting of which, and Mrs. Leach's cottage, by Alexander Wilson, is in our possession.

"In March, 1876, a picture of Wilson appeared in *Scribner's Magazine*, also an engraving of the school-house, which, with the present engraving, if correct, the ground has certainly been graded and many of the trees cut away since the days of Wilson. We have an impression that we have other engravings of Wilson's school-house, but at this time we know not where they are."

[The *Oologist* is correct in its supposition that Wilson boarded in the "Sorrel Horse Hotel," which was owned by Mr. Isaac Leech (not Leach), an uncle-in-law of the writer of this. The school-house was built on land belonging to a portion of the old Bartram estate, the land being

given so long as the building should be used for school purposes. The new public school has of course rendered the little old school unnecessary. The school building stood too near the road to preserve. The filling in of the valley and widening required for city purposes, made its preservation impossible. Still we have no doubt if those who love the memory of Wilson had indicated any desire for its preservation, it could have been easily moved back. It is a misfortune that the world only comes to a knowledge of its true benefactors so long after they are gone. If anything remains of them then it is treasured; but too often all material traces are lost before the time of recognition comes.

[While on the subject we may note that few men did more for intelligent horticulture in America than did Bernard McMahon in his day. His house was a rendezvous for Pursh, Lyon, Nuttall, and many whose names stand boldly out in history. That also is now in the line of a city street, and will no doubt soon have to go.—Ed. G. M.]

INTRODUCTION OF THE POTATO IN SALT LAKE CITY.—In the *Contributor*, a monthly magazine published at Salt Lake City, there is an extremely interesting account of the first settlement of Salt Lake City under Brigham Young, by Wilford Woodruff, one of the few of the original party now living. The date is fixed as July 24th, 1847, it being the day that Brigham Young with the main body came in. A small party had gone in advance, and in Mr. Woodruff's own words: "When we arrived on the ground, the brethren had commenced ploughing. I had brought a bushel of potatoes with me, and I resolved that I would neither eat nor drink until I had planted them. I got them into the ground by one o'clock, and these, with the potatoes the other brethren had planted, became the foundation for the future potato crops of Utah." Further on Mr. Woodruff says: "When we arrived in this valley we found it a barren desert, and a very desert it was. There was no mark of the white man. We found a few naked Indians, who would eat a pint of roasted crickets for their dinner. But a great change has come over this desert."

And, indeed, the difference in thirty years is one of the most surprising in the history of the human race. There are different opinions as to the advantage to the human race of the religious system which this little band planted in this desert; but there can be but one opinion as to

the right of the survivors to take pride in the magical change their eyes have seen.

ORIGIN OF THE NOISSETTE ROSE.—An American correspondent of the *Belgian Horticultural Review*, Mr. Jonathan Evans, writes to the editor an account of the origin of the Noisette Rose, which we may translate from the French as follows: "The Noisette Rose is a daughter of America. She was born one day in the garden of a brave citizen of Charleston, South Carolina, Mr. John Champney. It was obtained by fertilizing a Musk Rose, *Rosa Moschata*, by pollen from the China or Bengal Rose. Botanists called the new creation *Rosa Moschata hybrida*, and *Rosa champneyana* indifferently. But after awhile the name was superseded by that of *Rosa Noisettiana* in this way: At Charleston there lived a gardener named Philip Noisette, who was of French origin. This man fertilized one of Champney's hybrids, Champney's Pink Cluster, and getting from it another variety sent it in 1814 to Louis Freres, of Paris. The Rose became rapidly famous, and the name of Noisette replaced the first name of Champney, for the new race. It is just as it was when Americus Vesputius was given the honors due to Christopher Columbus in the naming of the great continent. The flowers of the Noisette are highly fragrant; they are numerous, double, and charm by the variety and delicacy of their colors. The following varieties, esteemed in America, are worthy the attention of Europeans: Beauty of Greenmount (1854), Isabella Gray (1854), Dr. Kane (1856), America (1859), Woodland Margaret (1859), Cinderella (1859), Russulda (1860). The Noisette Rose has one defect, the flower fades rapidly; but then what would we have if we had a choice? I am tempted to repeat the pretty verses of Th. Gautier, the French poet, which give pleasure even to a Yankee like me:

"The world is formed strangely! The weak is the strong!
Like shades in a dream, 'tis the vision allures,—
'Tis sorrow, not pleasure, that stays with us long;
The Rose lives an hour, but the Cypress endures."

BOTANY FOR HIGH SCHOOLS AND COLLEGES; by Charles E. Bessey, Professor of Botany in the Agricultural College of Iowa. New York: Published by Henry Holt & Co.

The progress of Botany during the past quarter of a century has been wonderful. In the early part of the present century the science had a fascination through the labors of Linnæus and his co-adjutors, and the romances of such writers as the first Darwin,—but very little was really

known of plants at that time. The efforts of these pioneers extended very little further than the reducing to something like order the scattered masses of facts about the affinities of plants. It could not be expected that learned and acute as these men were, they could at once reach the perfection of method. Thought, as well as all other departments of nature, walks on, but does not make great leaps. There must be evolution by degrees intellectually as well as in everything else; hence, in the science of botany, as in all things else, its history has to be written over again every few years. In these modern times, instead of taking one or two prominent features of a plant as the chief objects of study, every portion is deemed important. Its internal structure has to be investigated as well as external appearances, before we feel that we know it; and how it behaves is just as important as a knowledge of its several parts.

If we would know how we have advanced in our knowledge of these things, it will only be necessary to compare Professor Bessey's work with similar ones published, say but ten years ago. The necessity of such a work now will be at once seen and its value fully appreciated. We have read it very carefully through, and can commend it as one well worthy of the times, advanced, indeed, as the times are. It will no doubt become a standard work for study wherever botany is to be intelligently pursued.

If we were disposed to be critical we might refer to some points we think weak. There is so much of original observation going on in these days, and so little, comparatively to what there was in the past, of absolute dependence on the experience of one or two observers, however great they may be, that it cannot be expected that any two close students will be disposed to accept all the conclusions of any author in a branch of science which all acknowledge to be an unfinished one. We will merely content ourselves by saying of this, as we said recently of Dr. Gray's Structural Botany, that we feel that many matters here given as absolute truths, would have been better presented as "prevailing hypotheses." Instead, for instance, of saying that "the peculiar structure of the flowers of Asclepiadaceæ has recently been shown to be for the purpose of securing the services of insects in the process of pollination," it would have been better to have said, "believed in some quarters to be for the purpose." That pollination is assisted by insects through the peculiar structure

is a fact that one may safely teach; but that it was especially designed for this purpose is a disputed hypothesis, which might be well taught as such, but not among the things "shown to be" truths.

However, as we have said, these little weaknesses in a great work do no harm. They rather do good. For in these days, when original personal research is at the bottom of all instruction, slips of this kind strike the student, and lead him on to become wiser than his teacher; and this is a result which the best leaders in botanical progress, like Professor Bessey himself, heartily desire.

We trust this book will have a wide sale. Certainly no one who wishes to keep up with the progress of botanical knowledge, can afford to pass it by.

LA VIGNE FRANCAISE.—To show how great is the interest in France in all that relates to the famous Grape vine insect, we may only observe that we are informed that this is "a bi-monthly magazine, devoted to the interests of Grape culture, and its defence against the Phylloxera." It is published in Paris at 10 francs a year.

THE MARSHFIELD ELM.—A new house is to be built on the site of the old one; but the great Elm, which afforded its favorite shade to Daniel Webster, is to be religiously preserved.

HOW TO TELL WHEAT FROM CHEAT.—A Persian poet, Jami, thus answers the question, "What shall the harvest be?"

One was asking of a teacher,
"How a father his reputed
Son for his should recognize?"
Said the master, "By the stripling,
As he grows to manhood, growing
Like to his reputed father,
Good or evil, fool or wise."

So the disregarded Darnel,
With itself adorns the wheat-field,
And for all the vernal season
Satisfies the farmer's eye;
But the hour of harvest coming,
And the thrasher by and by;
Then a barren ear shall answer,
"Darnel, and no wheat am I!"

THE LILY OF THE FIELD.—John Ray, a distinguished botanist, who flourished at the end of the last century, says that Tulipa was the name of a peculiar hat worn by the Dalmatians on some occasions, and which was of the form of half an egg, and that the name was given to the tulip from its resemblance to this peculiar formed hat. He says the varieties are "inexplicable"

and beautiful, and it was no doubt the lily of the fields which our Saviour referred to when he described the glory of Solomon in comparison with the beauty of the flower. Other and more modern writers believe the flower referred to by Jesus was a true lily.

NURSERIES IN CANADA.—A Brookville (Ont.) correspondent writes that there is not a nursery in all Eastern Canada.

NAPOLEON'S WILLOW.—The *Gardener's Record* says:—"When the Empress Eugenie started on her pilgrimage to the scene of her son's death she took with her slips from a willow growing in Dean Stanley's garden, to plant at the foot of the young Prince's monument in Zululand. The tree in the Deanery garden has grown from a slip taken from the willow over the tomb in which Napoleon I. was interred at St. Helena. The strange tradition is related about this tree, that its condition is affected by the fortunes of the Bonapartes. It is remarkable that on the day of Sedan a large bough fell off, and on the day of the Prince Imperial's death in Africa another bough fell." The *Record* does not tell whether branches have ever fallen at other times.

MR. HENRY SHAW, the well-known munificent founder of the Missouri Botanical Gardens at St. Louis, celebrated his 80th birth-day on the 24th of July.

THE PLOUGH VERSUS THE SPADE.—We have a note from Mr. Henderson in regard to the "English Gardener's" complaint, too late for this, but which shall appear in our next.

MAHLON MOON.—In a letter of a Bristol correspondent of a city paper, we learned that "Mahlon Moon, the well-known florist of this place," died in the manner indicated in our last. We

are now informed that it was "Mahlon Moon, flourist," of that place, who was referred to. The identity of name, and similarity of flour with flower is so remarkable, that it is no wonder the correspondent or his printer got the matter mixed. It is a pleasure to add that Mahlon Moon, nurseryman, is remarkably well for one of his years.

KEW HERBARIUM.—A young English gardener, Robert Allen Rolfe, in an open competitive examination, has obtained the position of second assistant curator in the Kew Herbarium. It is said that many of those in competition had many more early advantages than the young gardener.

PROFESSOR ASA GRAY.—This distinguished botanist sailed on the 4th of September, in the British steamer *Marathon*, from Boston for England. Dr. Gray will spend a year among the botanical riches of Kew, preparatory to the finishing of some work on which he has long been engaged.

EXPERIMENTS AT THE MICHIGAN AGRICULTURAL COLLEGE.—This is a lecture by Prof. N. J. Beal. We have often remarked that the vice of horticulture is that many of its teachers will talk for an hour rather than experiment five minutes. Prof. Beal is a worthy example of the other side. He talks and endeavors earnestly to spread information through the world, but he also tries experiments, and thus knows of his own labors whereof he talks. We have had many heavy-bound books come to our table that were not half as valuable as this unpretentious pamphlet. It ought to have an extended reading by professional gardeners. We hope to make use of Prof. Beal's facts from time to time for the benefit of our readers.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

HUMBUGS IN HORTICULTURE.

ESSAY, BY PETER HENDERSON.

(Continued from page 287.)

He looked at me pityingly and said, "My dear sir, you expect too much; these Moss Rose just come over in the ship from Paris, you take him home and plant him and he bloom right away and he keep on blooming." I did not take him home, but I took the story, something in the shape it is now told, and had it published in one of the leading New York papers,

and, in less than a week, the "Blue Rose Men" had pulled up stakes, but, no doubt, to pitch their camp somewhere else, and set their traps for fresh victims. The "Blue Rose Men" are very impartial in their wanderings, and rarely omit a city of any size, beginning usually in New Orleans in January, rounding northward, and ending up with Philadelphia, New York, and Boston through April and May.

These humbugs in Horticulture have their comical side. The other year in passing St. Paul's Church (Broadway), New York, an old negro had squatted on the pavement with a great bundle of plants carefully mossed up, lying

alongside of him. On inquiring what they were, he said they were Rose bushes—Rose bushes having all the attributes wanted in a rose, fragrance, hardiness, and everblooming, and the price but 50 cents apiece. He had got them, he said, from the boss, and was selling them on a commission. The poor darkey was only an innocent agent; he no doubt believed he was selling rose bushes, but the Boss, whoever he might be, undoubtedly knew better, for the plants were not roses at all, but the common cat briar—*Smilax sarsaparilla*—one of the worst pests of our hedgerows, but which is near enough in appearance to a rose to deceive the ordinary city merchant.

That same season at every prominent street corner could be seen the vendors of the "Alligator Plant," which some enterprising genius had cut by the wagon load from the Jersey swamps, and dealt them out to those who retailed them on the street.

The "Alligator Plant" was sold in lengths of 12 to 20 inches, from 25 to 50 cents apiece, according to its straightness and length; and by the number engaged in the business, hundreds of dollars' worth have been sold. The "Alligator Plant" is the rough triangular branches of the Sweet Gum Tree (*Liquidambar styraciflua*), common in most parts of the country. There is no doubt whatever that these pieces of stick have been planted by thousands during the last two years in the gardens in and around New York, with about as much chance of their growing as the fence pickets.

The Bulb Peddlers, a class of itinerant swindlers, deserve brief attention. They have always some wonderful novelty in bulbs; and their mode of operating to the uninitiated has a semblance of fairness, as they are liberal fellows, and frankly offer to take one-half cash on delivery, and if the goods do not come up to representation the other half need not be paid—for example, when the Gold-banded Japan Lily was first introduced, bulbs the size of hickory nuts sold at \$250 per 100. About that time one of these worthies came along with samples of a lily of fine size and appearance, with which he told he had just arrived from Japan. There was no doubt of its genuineness, for he had seen it flower. He had a large stock, and would sell at \$100 per 100, but he was willing to take half that amount down and the other half when it flowered and had proved correct. It did not prove correct, and he never called. The bulb he sold was the common White Lily—*Lilium Candidum*—which is sold everywhere at \$5 to \$6 per 100. These same scamps flood the rural districts every year with blue gladiolus, scarlet tuberoses, and other absurdities in bulbs and seeds, usually on the same terms, of one-half cash down, the other half when the *rara avis* has feathered out. It is needless to say that they never try it twice on the same victim, but avail themselves of our broad continent, to seek new fields for their operations.

One of the most successful swindlers of this type was Comanche George, whose fame became national. George made his advent in New York

in 1876. He was, he said, a Texas scout, and for years his rifle, revolver, and bowie knife had been the terror of the red man; but one day in his rambles on the lone Texas prairies his eyes were arrested by a flower whose wonderful coloring eclipsed the rainbow, and whose delicate perfume was wafted over the Brazos for leagues; in short, never before had eye of mortal rested on such a flower. The man of war was subdued. He betook himself to the peaceful task of gathering the seed, and turned his steps to the haunts of civilized man to distribute it. We first heard of him in Washington, where he wished to place it in the hands of the Government, and accordingly offered it to Mr. Wm. Smith, Superintendent of the Botanic Gardens there, but the Government, so Smith said, was not just then in a position to buy, and with his advice, George trimmed his sails for New York, and a market. His success in Baltimore and Philadelphia was so great (where he started the sale of the seeds at two cents a piece), that it induced him when he struck New York, to advance the price to five cents a seed. He put up at one of the best hotels, and claimed that for a month his sales of the seed of the Cockatelle—the beautiful Texas flower—reached \$50.00 a day. But his success threw him off his balance; to took to fire-water, and in an unguarded moment fell into the hands of a newspaper man, who extracted from him all the facts connected with the enterprise. George never was a scout, had never been in Texas, but he had been a good customer to the various seedsmen of the different cities, where his purchases of Okra or Gumbo Seed, at about fifty cents a pound, had made nearly a dearth of the article. His victims (whose names he gave by the score, and which were duly chronicled in the newspaper article referred to) were from all classes: the enterprising florist, who secretly went into it in a wholesale way, with a view to outwit his less fortunate fellows; the grandee of Fifth Avenue, who anticipated a blaze of beauty on his lawn; the hotel man, whose window boxes were to perfume the air; all had fallen easy victims to the wiles of Comanche George. George disappeared from New York, though there is but little doubt that his business had been too successful for him to abandon it. A newspaper paragraph, cut from a paper last week, which reads as follows, looks as if it might be the Texas Scout in a somewhat different role:

"The prepossessing appearance, gentlemanly demeanor, and foreign accent of the man who called himself Carlo Corella, Botanist to the Court of Brazil, convinced a number of wealthy San Francisco ladies that he was truthful. He said to each that the failure of a remittance compelled him to sell some rare bulbs of Brazilian Lilies, which he had intended to present to Mrs. R. B. Hayes. 'The flower,' says the *Chronicle*, 'was to be a great scarlet bell, with ecruruchings on the petals, a solferino frill around the pistil, and a whole bottle of perfumery on each stamen.' He sold about fifty almost worthless bulbs at \$4.00 each."

(To be continued.)

EDITORIAL NOTES.

PENNA. HORTICULTURAL SOCIETY.—The Annual Exhibition was held this year in connection with the State Fair, in the hall of the Permanent Exhibition Company, which, as many readers may know, is the large structure covering twenty acres of ground, and which was known as the Main Building during the Centennial Exposition.

Of plants there were scarcely any blooming things exhibited, but Palms, Ferns and "leaf plants" were numerous, and for the most part presented evidences of good culture. This was particularly the case with the Dwarf Marantas exhibited by Hoopes, Bro. & Thomas, of West Chester. They were in shallow pans, about two feet wide, though the plants themselves were not over six inches high. Besides the Dwarf Marantas there were similar pretty dwarf plants, such as *Peperoma maculosa*, *Fittonia argyrea*, and *Tillandsia zebrina*, all grown in this admirable manner. Equally well grown and interesting were a collection chiefly of *Echeveria* and *Sedum*, which, as they are in such demand now for bedding purposes, were especially instructive.

There was nothing particularly new to notice among the leaf plants exhibited. Among the very well grown plants of Mr. Jamieson, gardener to G. L. Harrison, Esq., we noted that those two magnificent old kinds, *Sphaerogone latifolia* and *Cyanophyllum magnificum*, still remain at the head of their class.

Among the larger growing Ferns there are few more effective than *Nephrolepis davalloides fucans*, of which Mr. Jamieson had one about three feet high, and as much wide. Of good specimens, made so by age, was a very fine one of *Croton interruptum*, shown by John Nisbet. This was about six feet by six, and clothed with branches to the ground. It had a very striking effect. Another very good thing was a Fig tree in bearing, in a tub, exhibited by Laura M. Hipple. We did not notice that many of these interesting single things had any premiums awarded, as they were not probably in the "schedule of premiums." But it is the encouragement of just such efforts as these that societies should foster. The Fig, as a tub plant for houses and small gardens, is just the thing to give pleasure to thousands who cannot have grand gardens and immense pots of foliage plants. Fine collections of the new *Coleus* were exhibited in

pots by Hoopes, Bro. & Thomas, and by William Sutherland, showing how wonderfully variation has been increased; but the true value of a *coleus* depends on its behavior in large masses out of doors. In this respect the old *Verschofeltii* still keeps firm hold of popular favor. Among variegated greenhouse plants, a very fine specimen of the *Ficus Parvifolia* in the collection shown by Mr. William Joyce, gardener to Mrs. M. W. Baldwin, shows that this is still one of the most striking plants of its class. In the collection of Mr. H. A. Dreer, *Eulalia japonica zebrina* reminds us how useful this pretty thing is for outdoor summer decoration, and the yellowish *Torenia Baillonii* in full flower, proves a very valuable acquisition.

Among the exhibitors of new plants, Mr. W. K. Harris seems to be taking a lead. His twelve distinct kinds of winter blooming Carnations were very pretty, though the exact value to the florist depends on free blooming and other properties. His Begonias were also very attractive. One, *Begonia Schmidtii*, is a dwarf, compact, half shrubby kind, with neat woolly leaves and an abundance of pure white flowers. An older one in full bloom, *B. rubra*, reminds us to say that there are few better kinds to grow for red flowers.

Out among the fruits and vegetables there was of course the usual big Pumpkin of agricultural fairs, this time it weighed 130 lbs., and came from Mr. W. Sproule, gardener to John Hunter, Esq.; and there was a Watermelon from C. B. Rogers, weighing 78 lbs. The old "Mexican" or "Cassabar" Melons were out in force under a "Persian" name. It is very difficult to keep a Cantaloupe under a distinctive appellation. Mr. Dreer had a curious collection of Japanese vegetables, chiefly Legumes. A bunch of a curious *Salsola*, more branching and vigorous than the *Salsola Kali* of our sea coasts, was among them, and we are at a loss to know how the Japanese use this as a vegetable; perhaps as a pickle, as its close ally, the Marsh Samphire is so often used in Europe. Of the Beans, one with a very large pod, and after the manner of our Lima Bean, and called *Ensipora*, may be of value to us. A sort of Pumpkin or Squash, like a large roundish Watermelon, and with the botanical name of *Lagenaria dasystemon* attached, may also be of service. But the proof of the pudding is in the eating. There was a curious *Hibiscus*, allied to the Okra, but with numerous small pods; whether better than our Okra we do not

know. Mr. Dreer had, also, specimens of the new fodder plant Teosinte, *Reana luxurians*, but whether this will be any better for our climate than Pearl Millet, or even common fodder corn, we have no information.

In fruits one cannot but praise the exhibit of Apples and Pears, made by Edwin Satterthwaite. Usually at State Fairs, exhibits of these are made chiefly of winter or late ripening kinds, and are in September little guide to their real character. Mr. Satterthwaite's collection were mostly approaching maturity, in immense variety, and were particularly encouraging to those who might be disposed to plant a tree. Among the Apples, Cornell's Fancy and Gravenstien were particularly beautiful; but it may be said of all these immense numbers of varieties of fruits exhibited, that now-a-days they teach but little to the spectator. The true value of any variety must be tested in the orchard.

Grapes were out in great force, and showed how much had been gained in a quarter of a century. The new candidates for public favor, Prentiss, Lady Washington, Jefferson, Moore's Early, and Montgomery were among others, and if they grow as well as they taste, they will be permanently popular. Mr. T. Mellor had some remarkably fine hothouse Grapes, the Muscat Hamburg, being particularly delicious. But in this class exhibitors were not numerous.

Though not in the exhibition of the State Fair, yet on public exhibition by the city of Philadelphia at Fairmount Park, the bedding plants around Horticultural Hall were enjoyed no doubt by thousands of exhibitors. The writer, during the past few years, has had the opportunity of seeing the bedding of most of the public grounds both in Europe and this country, but has seen none that for harmony of color, grandeur of effect, or perfection in every detail, equaled this, and while so much is said in the public papers about the disgraceful condition of Philadelphia Parks and Squares generally, it must be set down to the credit of the city that its landscape gardener, Mr. Miller, has been permitted to make so beautiful a display here.

INSTRUCTIVE HORTICULTURAL SOCIETIES.—The plan of having instructive lectures on the plants, fruits and vegetables exhibited, inaugurated by the Germantown Horticultural Society a year ago, has added largely to the attendance and membership of the Society. The lectures are generally by Prof. Thomas Meehan, though

other members make occasional addresses. The Royal Horticultural Society of London has adopted the same plan. A recent *Gardeners' Magazine* says of a late exhibition: "Not the least pleasing part of the meeting was the remarkably interesting and instructive lecture by the Rev. G. Henslow on the objects brought before the Floral Committee."

A NEW AGRICULTURAL SOCIETY.—August 27, 1880, during the meeting of the American Association for the Advancement of Science, a meeting was organized, Prof. Caldwell in the chair, and Prof. A. J. Cook of Michigan Agricultural College, Secretary. After a full discussion the "Society for the Promotion of Agricultural Science" was provisionally organized, those present being Profs. Beal, Caldwell, Farlow, Kedzie, Goessmann, Cook, and Fernald, and Doctors Halstead, Ledoux and Sturtevant.

Professor Beal was elected President, and Dr. Sturtevant was elected Secretary. An Executive Committee was then appointed, consisting of the President, Secretary and Prof. Caldwell, with full powers to arrange for the next meeting, to be held on the day preceding the meeting of the American Association next year, and at the same place. The following are the names of the additional membership: Prof. W. G. Farlow, Harvard College, Cambridge, Mass.; Prof. C. A. Goessmann, Massachusetts Agricultural College, Amherst; Prof. A. J. Cook, Michigan Agricultural College, Lansing; Prof. Peter Collier, Department of Agriculture, Washington; Dr. B. D. Halsted, editor American Agriculturist, New York City; Dr. A. R. Ledoux, 17 Cedar street, New York City.

At the next meeting it is expected that papers will be presented by the members, embodying results of original research, and matter worthy of permanent preservation. The special fields and their occupants, thus far, are: Botany and horticulture, Profs. Beal, Bessey, Brewer, Dr. Sturtevant; pomology, Thomas, Barry; entomology and apiculture, Profs. Comstock and Cook; agricultural chemistry, Profs. Kedzie, Johnson, Caldwell, Hilgard, Goessmann, Collier, Ledoux; physics and soil, Prof. Hilgard, President Stockbridge, President Fernald; dairying science, Arnold, Dr. Sturtevant; veterinary, Prof. Law; vegetable pathology, Profs. Farlow, Halsted, Bessey. It is expected that other leaders in agricultural investigation will be invited to join this association, and that in time it will embrace within its limits the highest agricultural scientific talent in the country. At present the association has the cordial support of all its members, and it trusts that events will justify the wisdom and timeliness of the attempt.

PROF. W. J. BEAL, Lansing, Mich., President,
E. LOUIS STURTEVANT, M. D., South Farmingham, Mass., Secretary,
PROF. G. C. CALDWELL, Ithaca, N. Y., Committee.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The professional tree-trimmer of large cities usually waits till winter before he commences his destructive practices; but we note many trees about the Philadelphia streets are being beheaded while the leaves are on, and probably the same spirit of progression is rife elsewhere. Why these trees should thus be treated no one seems to know. In our inquiries, we have merely the answer that they look "pooty." Once in a while a tree may have been selected for a street tree that is too tall for the spot, and though we hasten it to the grave by heavy pruning, it is too tall for a narrow sidewalk and must be cut back. If these trimmers knew anything at all they would know how to cut off a large branch. But few of them do. Either huge strips of bark are peeled off below where the branch is cut, or the branch itself is split down through the middle. The man who knows his business cuts a little on one side before he saws or chops on the other, and the cut-away top falls without splitting or injuring the part that is left. It is very often difficult for the man ignorant of gardening, to tell the amount of gardening skill there is in the man he employs; but he may safely discharge the fellow who does not know how to cut away a large branch without injuring the part that is left.

A pretty idea, developed the past year or so, is to have colored-leaved shrubs, kept short by

pruning, formed into masses like Coleuses and other bedding-plants. They can be taken up every year, so as to make new combinations, if desired. Blood-leaved Beech, Variegated *Althæa*, Golden Honeysuckle and Golden *Spiræas*, are favorites in this style of gardening; and there is the additional advantage that the beds do not look so naked in winter.

It is now so well understood that we may have an immense addition to our list of hardy evergreens if we will only shelter them, that we expect all those who love these varied winter favorites will take measures this season to plant shelter belts in exposed places, or else to set the common hardy trees like Norway and Hemlock Spruce, and Scotch, Austrian and White Pines thickly about, so that the rarer ones can be put between them.

Almost all young trees are tenderer than they are when older. It is therefore no test of the hardiness of some rare thing, that a small plant is killed in the winter. Silver Firs almost always get killed back for a few years in this section, unless protected, but yet gain a little in strength. After they are ten years old they will endure our hardest weather. So Spanish Chestnuts, English Walnuts, and many others, will die back considerably, until they get strength. Therefore, protect any valued young plant, if possible, no matter how hardy its reputation may be.

Nice smooth lawns are great attractions. If

not level and smooth, earth may be filled in the hollow places at this season, and raked smooth and level. If not over two or three inches deep, the grass beneath will come through and make a sod before next summer; but if deeper, a little grass seed may be sown.

In treating hedges of Osage, Honey Locust, or other deciduous plants, we like the plan of letting them grow as they will for two or three years, and then, when the stems are a couple of inches thick, saw to the ground. A mass of strong sprouts then pushes up, which can be pruned into shape the next summer. Where hedges are to be thus made, or older ones have been neglected, they can be cut down to the ground any time in the fall or winter season. It seems that in spite of all that has been said, Osage Orange and Honey Locust are the best plants for farm fences, or where any very strong fence is desired. Berberry, Silver Thorn, and Pyrus japonica are the next best—indeed, except that it takes rather longer to make a good fence, the last named would be as good as the two first in all except cheapness.

COMMUNICATIONS.

THE BEST AUTUMNAL ROSES AMONG HYBRID PERPETUALS.

BY H. B. ELLWANGER, ROCHESTER, N. Y.

What a misnaming there is of a large part of the varieties which go by the name of Hybrid Perpetual Roses! Many splendid sorts in June, like Marie Rady, Jean Liabaud, and all of their type, yield no flowers in Autumn, unless it be an exceptional bloom on old plants. It is especially difficult to find a deep crimson that will give flowers of any quality at this season. The best one, as yet, is Louis Van Houtte, followed by Prince Camille de Rohan. Good bloomers of lighter shade than these two, are Alfred Colomb, Horace Vernet, Marie Baumann. Maurice Bernardin and Prince Notting will also do quite well if cut back when the June blossoming is over. In the light shades, that is rose and pink, we have somewhat more desirable Autumn roses than amongst the dark ones. Among them Francois Michelin and Marguerite de St. Amande stand first. Countess of Serenye is a beautiful rose in Autumn as indeed it is throughout the year. Abel Grand, hardly worthy of being retained for its June blossoms when we have so

many finer, is a valuable fall sort, the blooms being fully produced and generally of better quality than in the Spring. Baroness Rothschild, La Reine, Mdle. Theresa Levet, Paul Neyron, Rev. J. B. Camm, and all the Victor Verdier family, are free flowering kinds; the best of the latter are Mdle. Eugenie Verdier, Countess of Oxford and Victor Verdier. Anne de Diesbach, Boildieu, Baronne Prevost, Mme. Boll and Princess Charlotte, though not equal to the others, are all desirable.

The two Roses which will give the greatest number of really fine blooms after the first of July until cut off by the frost, are Marguerite de St. Amande and Francois Michelin.

Below is given in order of merit the best twenty-four autumnals; as La France now goes in the class of the Hybrid Teas, it is not included in this list; if it were, it would have the place of honor:

LIGHT COLORS.

- | | |
|------------------------------|-------------------------|
| 1. Francois Michelin, | 10. Countess of Oxford. |
| 2. Marguerite de St. Amande, | 11. Rev. J. B. Camm, |
| 3. Countess of Serenye, | 12. La Reine, |
| 4. Abel Grand, | 13. Mme. Boll, |
| 5. Mdle. Theresa Levet, | 14. Princess Charlotte, |
| 6. Baroness Rothschild, | 15. Boildieu, |
| 7. Mdle. Eugenie Verdier, | 16. Baronne Prevost, |
| 8. Paul Neyron, | 17. Anna de Diesbach, |
| 9. Victor Verdier. | |

DARK COLORS.

- | | |
|--------------------|-----------------------------|
| 1. Alfred Colomb, | 5. Maurice Bernardin, |
| 2. Marie Baumann, | 6. Louis Van Houtte, |
| 3. Horace Vernet, | 7. Prince Camille de Rohan, |
| 4. Pierre Notting. | |

CROSS-FERTILIZING AND RAISING ROSES FROM SEED IN ENGLAND.

BY T. T. LAXTON, BEDFORD, ENG.

Mr. Ellwanger, of the firm of Ellwanger and Barry, Rochester, N. Y., who is doing much to elucidate the origin of American and English Roses, having requested information respecting the varieties raised by me, I have been induced to look up what I have effected in that direction; and as Mr. Bennett's recent success in cross-breeding the rose has created considerable interest in the subject, perhaps even the record of unprofitable work may be of advantage to those who propose entering on the same field. By way of preamble, therefore, my advice to all who desire to do so, is not to carry on their operations without the aid of glass wherever

such means are available, for two of the great secrets of success in obtaining rose seed are ripe wood and a dry atmosphere, conditions not always attainable in England without the aid of glass and artificial heat, and undoubtedly much of my labor was thrown away for want of proper protection against the vicissitudes of our climate, and many valuable acquisitions may consequently have been lost; for as the majority of the best Roses are very double and really botanical monstrosities, this abnormal fullness of petals tends towards decay of the generating organs by retaining surplus moisture.

My first attempt at cross-breeding the rose was in 1857, when, *inter alia*, I fertilized H. P. General Jacqueminot with the old white Damask Maiden's Blush. From this cross I obtained a very pretty light carmine variety, remarkably sweet and of good form, but not sufficiently large for a show rose. I gave the stock some years afterwards to Mr. Ward of Ipswich, who had been working in the same direction, but I do not think he found it good enough to send out. From this start, however, I derived sufficient encouragement to induce me to proceed, and in the seven years from 1858 to 1864 I fertilized, marked and recorded nearly five hundred blooms, crossing, recrossing, and intercrossing most of the best H. P.'s, Teas, Bourbons, and summer striped roses of the period; and amongst the more remarkable of the results I obtained a vigorous-growing, semi-double, satiny-pink flowered seedling from T. N. Glorie de Dijon × H. P. Souvenir de Comte Cavour (a bright red rose), the offspring being a good seed-bearer, the flower almost scentless, and the plant in most respects partaking more of the Hybrid Perpetual than of the Tea character, the foliage and growth showing but little of the latter type. From naturally fertilized flowers of this rose I have raised seedlings showing more of the Tea blood than their parent, some coming single white and apparently pure Teas, others dark red and very double H. P.'s. By crossing Bourbon Louise Odier × striped Provence old Tricolor, the offspring was a summer rose with the spring foliage, distinctly striped with yellow. the variegation, however, invariably disappearing in the summer as the foliage matured. The flower was pale pink without any appearance of variegation. Many of the blooms fertilized were abortive, and either never set at all or produced hews without seeds, and as is usually the case, numbers of the seedlings succumbed to weakness

of constitution. Not a single rose, however, of any commercial value or good enough to be sent out came from these attempts. In 1865, however, I determined to make more extended efforts in crossing the rose, and as a further inducement and encouragement for me to proceed the York Horticultural Society offered annually a prize for the best English-raised white Hybrid Perpetual Rose. Accordingly in that year I fertilized, marked, and recorded upwards of four hundred blooms, chiefly H. P.'s and Teas, and in 1866, 1867, and 1868 upwards of one hundred more. From amongst the varieties crossed in 1865 I obtained a hew containing seven seeds by fertilizing H. P. Madame Vidot × Virginal. One seed only vegetated, and this produced H. P. Princess Louise, a good hardy, creamy-white garden rose, sometimes tinted pink (sent out by Messrs. Paul & Son). This, however, failed to satisfy the requirements of the York Horticultural Society as a white rose. There is a likeness in this rose to Mabel Morrison, a bud sport with white flower from Baroness Rothschild. By crossing H. P. Louise Peyronny × Victor Verdier I aimed at getting a flower of the largest size, and this I secured in H. P. Prince of Wales (sent out by Messrs. Paul & Son), but unfortunately its thinness of petal and want of a stout external guard render the flowers liable to fall open and to appear somewhat coarse. These are the only two fairly good roses which have, I believe, at present been distributed from upwards of one thousand crosses! but good results have been obtained and will probably be shortly forthcoming from crosses between 1864 and 1868—viz., H. P.'s Comtesse Chabillant × Jules Margottin and Anna de Diesbach; John Hopper × Sénateur Vaisse; Glorie de Santenay × Madame Julie Daran, Prince Camille de Rohan, and Beauty of Waltham; Lord Raglan × Charles Lefebvre and Maurice Benardin; Jules Margottin × Sénateur Vaisse, Francois Lacharme, and Bourbon Louise Odier; Charles Lefebvre × Lord Raglan, Sénateur Vaisse, Mons. Boncenne, Prince Camille de Rohan, André Leroy, Alfred de Rougemont, and Madame Furtado; Louise Peyronny × H. C. Charles Lawson Victor Verdier, and B. Louise Odier; H. C. Charles Lawson × H. P. Olivier Delhomme; Bourbon Baron de Noirmont × Sénateur Vaisse; Madame Victor Verdier × Charles Lefebvre; La Ville de St. Denis × Marguerite de St. Amand; Mons. Boncenne × Charles Lefebvre, Mdle. Bonnaire (all H. P.'s), and Striped

Gallica Village Maid. Some of the offspring of the above crosses have from inherent weakness disappeared, and others which have exhibited more or less novel or valuable traits are in the hands of Mr. Charles Turner of the Royal Nurseries, Slough, who will probably in due course and when thoroughly tested, introduce them to public notice.

Since the above was penned, Mr. Charles Turner has exhibited H. P. the Rev. H. M. Stowers, a seedling from Charles Lefebvre × Prince Camille de Rohan, and has received a first-class certificate from the Royal Horticultural Society for H. P. Mrs. Harry Turner, a finely formed and very brilliantly colored seedling from Charles Lefebvre by Alfred de Rougemont, which he is now sending out.

In the course of my operations the anthers only of those flowers were previously removed in which there appeared special risk of self-fertilization; but cross fertilization was generally effected only on such flowers and when in such condition as to be practically safe from self fertilization. Since 1868 I have chiefly discontinued the raising of seedling roses from artificially fertilized flowers, and have devoted my attention to the selection of heps from naturally fertilized flowers of the best varieties only, having long since arrived at the conclusion that by the latter means more certain results may be obtained, especially where good shape and beauty of flower are desired, as the different types of beauty in the rose are numerous, each being excellent in its own particular character, but when any of these types are combined coarse or heterogenous flowers may be expected to result. Most of our garden roses have also been so much interbred that there is a great tendency in the offspring to revert to one or other of their ancestral types, rendering the results from cross-fertilization too precarious and unreliable to be remunerative. Mr. Bennett, however, is opening-up somewhat new ground in crossing the Teas with H. P.'s, and with his appliances, skill and intelligence all brought to bear, some novel and valuable hybrids ought deservedly to crown his exertions.

It is, however, scarcely credible that such a practical people as the French, who, although they may not always grasp our tastes as readily as they do our purses, but who are at least as prompt and expert in the cross-fertilization and hybridizing of plants and flowers as we are in England, should so universally have neglected to resort to or continue to use similar means

with the rose unless more certain or remunerative results were otherwise attainable; and I can only arrive at the conclusion that experience has taught our neighbors as it has myself, and I believe others who preceded me in this country (including Mr. Wm. Paul), which is the more profitable mode; and it must not be forgotten that the immense advance which has been made in the garden rose, especially in the Hybrid Perpetual class, during the last three decades is largely due to French exertions, and has been attained, practically only, by means of self-fertilization. The following roses raised by me in 1864 were from seed of naturally fertilized flowers—viz., H. P.'s Annie Laxton from Jules Margottin; Marchioness of Exeter, probable also from the same parent; and Empress of India, I believe from Triomphe des Beaux Arts, and not from Louis XIV., of which it appears to be a vigorous prototype. In 1869 I raised H. P.'s Mrs. Laxton, probably from Mme. Victor Verdier, Charles Darwin from Madame Julie Daran, this being the dark H. P., Rose of Bourbon blood *par excellence*, of which I sowed the seed in that year, and Emily Laxton perhaps from Abet Grande. All the above were sent out by Messrs. Paul & Son. The parentage of H. P.'s Richard Laxton sent out by Mr. C. Turner, and Dr. Hogg in the hands of Messrs. Paul & Son, I regret being unable to identify; but with a large and continually increasing number of seedlings I have found it impossible to keep even the year's results in all cases distinct.

Seedling Roses are very uncertain as to the period of showing their first bloom, some flowering when little more than two inches high, and within two or three months from the seed being sown, and others, although often eventually proving good Perpetual Roses, do not show bloom for several years. I have now seedlings of the current year showing bloom. My crop this season consists of upwards of one thousand seedlings grown on a bed containing about two square yards; most of these are already planted out, and several of them I hope to bud, bloom and primarily test before winter. In the ordinary course at least one-half will probably disappear before next year from delicacy of constitution. These I shall not regret, as a winter's exposure will save an immense amount of anxiety and some labor for the care of what would have proved to be only consumptive and sickly progeny. All seedling roses before being distributed should be fairly exposed during one winter

at least, and our race of roses would eventually become hardier and more vigorous. The practice ought to be a *sine qua non* with all raisers, some discretion being exercised as regards the variety and the situation.

A PLEA FOR THE OLD-FASHIONED LAVENDER.

BY MRS. H. E. WHITE, BRYAN, BRAZOS CO., TEXAS.

In a number of your magazine, a correspondent pleads the cause of the Wallflower or "Dame's Violet," as it was called in the old-fashioned days, when it was the favorite of high-born ladies. There is another flower, even dearer to me from the associations that cluster around it, than the Wallflower, and this much loved flower is the Lavender. It is called *Lavendula* from the Latin *lavare*, to wash—because the ancients used it in bathing and washing; and we all know the oil is used in medicine and perfumery. Lavender water and lavender tea are used to soothe the nervous and hysterical. These qualities give it a rank among doctors and perfumers. Now for its use in flower gardens. With its silvery, compact leaves, and purple blooms it makes a beautiful hedge, planted and trained and trimmed as we do Box hedges. I remember a garden I visited frequently while I was in Southern Europe, and to me, one of the sweetest, prettiest things in it, was a hedge tenderly guarding the flower beds; a hedge, all silver and purple, of modest, old-fashioned Lavender. Bring it from the kitchen garden and let it adorn our flower yards, where low hedges are wanted. In obsolete parlance to "lay in lavender," meant to lay away nicely and carefully, to keep sweet, showing that from time immemorial, lavender has been used to perfume clothing. Does not the dainty Keats tell us, in his "Eve of St. Agnes," of the "Lavender-scented sheets!" Does not its perfume bring to us a delicious dream of our childhood? We feel the cool linen against our cheeks; there is a breath of lavender, a vision of our mother "tucking us in bed" for the night! For an instant we are children again and life a beautiful picture of purity and hope. It is gone like the breath of lavender, but are we not better for that passing moment of childhood?

In a poem upon Violets, one verse is equally appropriate to the Lavender, if we substitute it for violet.

"Yea, brings it not to every breast
Some vision sad and sweet,
Of some loved memory laid to rest
In Violet-scented sheet."

We lay our loved dead, our holiest memories, to rest in sheets scented with Violets and Lavender; there is a holiness, a purity about these two modest, purple blooms, that no other fragrance can claim; other flowers smell stale after a time, these two always seem fresh and pure.

Lavender was, in old days, an emblem of affection, and Dryden as well as Keats, has embalmed it in verse.

"He from his lass, him Lavender hath sent,
Showing his love, and doth requital crave."

Let us revive the ancient love and appreciation of this flower! Let it perfume our linen, our baths, and soothe our nerves with its fragrant tea. Let us honor our gardens with this ancient, patrician plant that stands in its simple suit of silver and purple, and claims a place among flowers that gold and scarlet can never fill.

GARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

Verbena venosa is a good old favorite. It is not hardy here, but winters well in a cold frame. It bears seeds abundantly, but old plants come into bloom several weeks before the seedlings; hence the desirability of keeping over a lot of them. This *Verbena* has deep purple flowers, blooms all summer long, is excellent for common bouquet work, a good grower and is not subject to blight or rust. In England, planted among Bijou pelargoniums, we find it in almost all large gardens.

If you want a floral display in summer, plant Petunias, and if you want a gay window in winter, the Petunia has no equal.

In a garden on Main Street a large variegated Century Plant is set on a pedestal four feet high. Virginia Creeper has grown around the pedestal, up over and hidden the pot, and some of the branches have twined through among the leaves of the century plant. The whole thing looks cosy and becoming, and the vines, by a little annual cutting, can be made to perform the same office for years unlimited.

Another case is that of an old Pear tree forked about six feet from the ground. The stem is clad in Virginia Creeper, and in the fork rests a pot full of *Oxalis floribunda*. The bunch of

red *Oxalis* flowers sticking out from among the deep green leaves of the creeper has a novel and pleasing effect.

Plumbago Larpenæ is at its gayest in September. Its deep blue flowers are very pretty. It is not hardy here in the open ground, but winters well in a cold frame. It is hardy from New York southwards.

Plumbago Capensis is, at present, our most copious and beautiful lavender colored flower. Cuttings struck last spring and transplanted from three-inch pots in May, are making this display. It requires greenhouse protection in winter.

Aponogeton distachyon or Cape Pond Weed has blossomed all summer long in our pond. Plants left out all winter are vastly stronger than those wintered in the greenhouse. It is hardy, providing the roots are deep enough to be beyond the reach of ice. Being a small plant it does not do so well in water over three feet deep as where it is more shallow.

EDITORIAL NOTES.

CRANSTON'S ROSE NURSERY AT HEREFORD, ENGLAND.—The nurseries were established in 1785 by the grandfather of the present proprietors. They comprise 130 acres, of which 60 are devoted to Roses. It has one house, 140 by 25 feet for Rose cut flowers, and this is said to be the largest cut flower rose house in England. Marechal Niel is the great favorite. In the open ground, 66,000 "Standards" were budded the past season. The ordinary roses are on budded stocks. Of these 500,000 Manettis were budded the past season. The Dog Rose is also in use for stocks. They can make large exhibits; at one recently they had fourteen thousand cut specimens.

ACER PLANTANOIDES AUREA VARIEGATUM BUNTZLERI, is the latest addition to the new list of trees, but mercy, what a name for a striped leaf maple!

A FRENCH COLLECTION OF ROSES.—At one of the expositions in France last June, Mr. Joseph Swartz exhibited 400 varieties. Among some seedlings which he exhibited, and which were pronounced by the jury decided acquisitions, was Madame Joseph Swartz, a Tea Rose, rosy white passing to a whitish salmon, raised from

Comtesse de Labarthe. Also a hybrid perpetual Guillaume Guillemot.

YUCCA GLORIOSA.—Generally this species throws up its flower stems so late, that the frost catches them before they open. In gardens about Philadelphia, this season, they opened in the middle of September, and made the gardens very gay by their large panicles of pearly white flowers.

SALVIA FARINACEA.—This beautiful blue species from southern Kansas and southwardly, proves to be well adapted to garden culture. It blooms at the end of August and lasts till frost. It is often grown under the name of S. Pitcheri.

NEW VERBENAS.—There seems to have been almost reached a limit to the production of any remarkable novelties in Verbenas; but in England a variety is said to have been raised which is said to have two of the petals purple and three white, looking in fact much like a cluster of miniature Pansies. Mr Cannell is said to have it.

NICOTIANA SUAVEOLENS.—A small pinch of seeds sent us by some friend, sown in the open ground in May, has had hundreds of pretty white flowers from August to frost. Though not particularly "suaveolent," it is an attractive border flower, and of very good habit of growth.

TREE COMBINATIONS.—Beautiful effects may be had by combining trees of distinct peculiarities. The *Gardener's Chronicle* refers to a pleasant effect produced at the end of an island in a lake by a Weeping Willow and the Lombardy Poplar. The last is in the centre of a mass of willows which are kept low around the poplars.

ROSES.—The two articles by Mr. H. B. Ellwanger and Mr. Laxton make this, in a great measure, a "Rose" number. There is an increase in the taste for rose culture, and the "Rose number," we are sure, will be generally welcome.

PUBLIC PARKS AND GARDENS.—The New York *Independent* says:—"We have noticed, from time to time, in our columns, the public spirit and liberality of some who have, at great expense and labor, provided public parks for the people. A man who builds and furnishes a church, where plain Gospel truths may be spoken, and then gives it to any community, is a noble man in the best sense of the word; but wood and bricks and mortar will

soon decay and crumble to the earth. The living voice of the preacher, in such a place of worship, together with the generations of listeners who have profited by his teachings, will soon be hushed in silence. The giver of such a gift, however, has done a great work, and, when completed, and the title-deed executed and presented to a grateful people, he can well afford to die, for he has literally and truly fought a good fight with his selfish heart, and been a co-worker with God in his mighty efforts to redeem the world. But is he not also a good man who converts ten, fifty or a hundred acres into a perpetual preaching-ground, where God's servants and teachers are not men, but everything beautiful in nature, which the Great Maker and Builder of the world has created and given to us, a free gift, to make us happier, wiser and better in all our earthly pilgrimage, and prepare us to enter the pearly gates, and walk the golden streets, and drink of the water of the River of Life, and eat of the fruit of that tree which shall be for the healing of the millions who go hence to be happy forever? The man who provides such a preaching-ground and such living, truthful preachers, who now and evermore will speak such loving words to the poor and the rich, the heart-sick and the sorrowing, the bereaved and the disappointed, shall have a name which shall live with the unborn millions of earth, and he shall evermore be counted a good and faithful servant of his day and generation."

AUTUMN BERRIES.—Autumn tints are famous but autumn berries no less deserve admiration. On the lawn there can be fewer prettier ornaments than some of our pretty berried shrubs. Vick gives a colored plate of the following in his July monthly. He has in this plate several Hawthorns, Ampelopsis, White Snowberry, Actæas, Berberry and Euonymus. Besides this one might add the nice violet berried Callicarpa purpurea. It is superb at this season.

CORNELIA KOCH ROSE.—Mr. C. M. Hovey, in a remarkably interesting supplement to Mr. Ellwanger's history of American Roses, says that Cornelia Koch is the correct orthography of this rose. It is pronounced Cook, and hence is often written erroneously Cornelia Cook. It was raised by Mr. Koch, florist of Baltimore, about 1857, from Devonensis.

SUNFLOWERS IN AUTUMN.—The Sunflower as a single specimen is too coarse to be beauti-

ful, but a dozen seeds sown in one spot make a bunch which is not over coarse, and if not sown till the middle of May, will give a mass of moderate sized flowers in the autumn that any lover of an attractive autumn garden will be proud of.

QUERIES.

VARIEGATED AILANTHUS.—Mr. W. F. Heins, Paterson, New Jersey, sends a photograph of a Silver Variegated Ailanthus. It will be pretty if constant.

AMPELOPSIS VIRGINICA.—There are few more useful garden ornaments than the Virginia Creeper. We are reminded by a note from a correspondent, that like all things else, it varies from seed, and, if observers would look closely at wild forms, some good varieties worthy of culture might be discovered.

KENTUCKY BLUE GRASS.—L. P., Pittsburg, Pa., writes: I am advised to use Kentucky Blue Grass for a lawn,—but I should suppose a green lawn is the great desideratum, and the blue of this grass disagreeable. What is your opinion?"

Kentucky Blue Grass makes an excellent lawn grass. It generally crowds out all less desirable plants, and makes a close, tough sod. It is not blue in Pennsylvania, though darker than other grasses, except when manured with phosphates or chlorides, when it has a shade equal to the Kentucky grown article. It is the soil of Kentucky that gives it the peculiar tint there which suggested the name. The only Blue Grass in Pennsylvania is *Poa compressa*, and which is the "Blue Grass" of the botanists. It is, however, of little value to agriculturists, and has no popular name, or at least none that is generally accepted. The only "Blue Grass" of the seed trade is the "Kentucky Blue Grass," and you are not likely to get hold of the botanist's Blue Grass in making your lawn.

SALT ON WALKS.—S., Danville, Pa., writes: "Will you inform me through the magazine, whether salt is practically available for destroying grass on the sides of roads and in the paths, etc.?"

[Salt is a very good thing for destroying weeds on walks, noting that the drainage does not overflow and destroy plants near by.—Ed. G. M.]

HARDINESS OF HYACINTHUS CANDICANS.—Mrs. R. B. E., writes: "I notice Mr. Hovey says in his catalogue that this bulb is 'hardy with the

protection of a cold frame, but is better taken up and planted in the spring like the *Gladiolus*. Perhaps that is the better way to treat them, but the bulb is as hardy as a Tulip, nevertheless. I had a dozen and a half seedlings, which I grew from seed sown in April, the labels got misplaced, and they were not covered at all last winter. They were not over two inches deep, and

one I found lying fully exposed, on the top of the ground, in March. Every one came up—that included—and made a strong growth, but did not flower, I suppose not being old enough. I do not know how old seedlings must be to flower, but I think there can be little doubt about the hardiness of a bulb that retains its vitality in this latitude, on top of the ground."

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

The greenhouse will now begin to look more natural, after having had the stock housed last month. With many plants having probably been taken up out of the open ground, dead leaves will daily appear, requiring frequent removal. Neatness is one of the chief beauties of a greenhouse. Acacias, and Australian plants generally, with hard wood and delicate roots, should be placed at the coolest end of the house, where little water will be required. These plants should not be watered often; but when they are, it should be thorough. Frequent waterings soon render the roots of these plants unhealthy, when it is very difficult to restore them to vigor. Whenever the foliage becomes of sickly yellow hue, the best plan is to plunge the plant in a larger pot, filling the space with moss,—and when the plant requires water, give it only through the moss, unless the plant seems to become so dry as to suffer, when it should receive one thorough watering. Very little fire should be applied to a greenhouse,—just sufficient to keep it at about 45°. Unless very far north, but little fire-heat will be required this month.

Window Plants should not be kept very warm at this season. They should have all the sun and air, and as little of the artificial heat of the room as possible. These remarks apply especially to *Mignonette*, which is very impatient of in-door confinement. Succulents, such as Cacti, are excellent window plants in this respect, as the dry air does not affect them. To keep the air about the plants moist, is one of the secrets of window culture. Some who have very

fine windows well stocked with fine plants, make glazed cases with folding doors of them, by which, when the room is highly heated and very dry, they can be enclosed in an atmosphere of their own. In such cases, Ferns and Mosses can be grown to perfection, and pendant plants in hanging vases give a Brazilian forest appearance to our happy Christmas homes.

Hanging baskets, on the other hand, are generally too dry. Besides the daily waterings, about once a week they should be immersed in a bucket of water.

Plants stored away for the winter in cold pits, require more care for the first month or so than at any other time through the winter season. Many of them have unripened shoots, or shed many of their leaves, and unless they be cut off and removed, gangrene and decay commit distressing havoc. Air should be given at every opportunity, and nothing omitted that will, in any way, tend to harden the plants, and send vegetation to rest. No more water should be given than just sufficient to prevent withering, and the temperature should be kept as near 40° as possible, and every chance taken to render the air about the plants dry. When frost actually does come, no further care than protection from its embraces will then be required. Plants so hardened may stay covered up for weeks, without any light or air, and secure from the slightest injury. Mice constitute the most troublesome enemy in a pit closed for any length of time; but we have, as yet, found nothing better than the recommendation given in back volumes, namely, to take Peas and soak them twenty-four hours in water, then roll in arsenic and sow in a pot, as if in the

regular way of seed-sowing. A few pots so prepared, should be placed in the pit before permanently closing up. The mice usually make for these pots at their first entrance to the pits. If placed on the soil, they seem to guess your secret, and will not "bite."

Plants in cellars need much the same care as those in pits. Avoid heat and dampness; frequently however, plants suffer in cellars through getting too dry. They should be looked over, at any rate, once a month, and a little water given, if likely to become entirely dry.

COMMUNICATIONS.

CUT-FLOWER TRADE.--MARESCAL NIEL.

BY W. E. MEEHAN, PHILADELPHIA.

It was not long after the first importation of M. Niel from France, that its great value to the cut-flower trade was discovered. It became at once the king among the cut roses. Its large size, solid look, rich tea fragrance, rich golden yellow color, and graceful drooping habit, and clear, bright shining leaves, won for itself a permanent place in the hearts of the people.

It is grown principally in the neighborhood of Boston and New York. The grower that is most successful in quantity and quality is in Long Island, and so fine are they, that the buds are called after him, and bring a higher price than any other growers. New York and Boston consume at least ten thousand Niels daily. It has only been within the past two or three years that Niels have been used largely in Philadelphia, but the demand there is increasing largely every season to such an extent that it is safe to say that in a few years it will use nearly, if not quite as many as either of the other two cities.

Niel is used for all purposes in flower work. Combined with Jacqueminot roses or Marie Louise violets and smilax, it forms the most magnificent bouquet that can be imagined.

A bouquet of Niels and Smilax during the opera season is worth from ten to twenty dollars. The buds retail at from twenty to fifty cents each; wholesale, from ten to twenty dollars per hundred. The highest figure reached, wholesale, last year was thirty-five dollars. The lowest five dollars. It is one of the three roses that florists have an interest in keeping the price of up, and so particular are they in this matter that it is seldom that the purchaser can buy one for less than

twenty cents, although the wholesale price be only five dollars per hundred and the market glutted.

One reason for this is that it is a true "crop" rose, and therefore, at times, very plentiful, while at others terribly scarce; and as very few customers can understand that flowers can fluctuate in value, the same as railroad stocks, it is necessary to keep a nearly uniform retail figure, which must of course be high to cover.

A second reason is, that just so long as it remains at a fair rate, Niel will take with a certain class that would not purchase, if they imagined for a moment that it was a "cheap" flower. It is thus that an innocent advantage is taken of human nature, and the old adage of "tricks in all trades but ours," is fully exemplified.

A good Niel plant will produce from a thousand to fifteen hundred blooms in a season, though occasionally a bush will cut two thousand.

The color of the flower is intensified, and the buds larger, and the plant more vigorous, by its being worked on the Banksian Rose.

PAULLINIA AND EUPHORBIA.

BY WM. T. HARDING, UPPER SANDUSKY, OHIO.

To "C.'s" inquiry, in September MONTHLY, I would say: Probably *Paullinia thalictrifolia*, is a new comer; at any rate it is a stranger to me, although I am well acquainted with the genus. *P. barbadensis* is an evergreen climber, a native of Barbadoes, which the industrious tillers of the soil look upon as a troublesome nuisance. So is *P. tetragona* a singular square-stemmed variety, with oddly shaped white flowers; it is a pest of the worst kind in the West Indian plantations. *P. polyphylla* is perhaps the best known kind, and will by many be remembered as an old time hot-house climber, and from which of late years it seems to have been banished. There are a dozen or more species, all evergreen climbers, indigenous to sunny lands, some of which were in cultivation in England as far back as 1739. They belong to the Nat. Ord. Sapindacæa.

Euphorbia piscatoria is well known to the writer, and was introduced into English plant collections in the year of 1777. It is, as most of its congeners are, a very peculiar looking succulent plant, of low growth, and its native habitat is the Canary Isles. The piscatorial islanders make use of the inspissated juice, which is a powerful and dangerous opiate, to stupify fish with, and which are then easily caught when

under its narcotic influence. Hence the name *E. piscatoria*, or fisherman's *Euphorbia*. It is said to possess a similar property to *Cocculus suberosus*, better known as *C. Indica*, which is much used in the adulteration of ale and beer.

With this poison, no doubt, many a big, simple *homo* is caught, as well as guileless little fishes.

MARESCHAL NIEL ROSE.

BY JAMES W. DOHERTY, GARDENER TO W. T. STEVENS, NEWPORT, R. I.

I have read Mr. Pearsons' account of his Mareschal Niel Rose in the *GARDENER'S MONTHLY*. It was very good. I have a Mareschal Niel Rose growing in a greenhouse, where I raise my bedding plants. It is 45 feet long, and the roof is wired, the same as a grapery, and the Mareschal Neil trained on to it; it covers the entire roof. I have at several times cut three hundred roses off it at one time and over four thousand in one year.

SASH BARS.

BY O. J. POPPEY, POUGHKEEPSIE, N. Y.

Having had considerable experience with grooved sash bars, I beg to be permitted to state through these columns why I failed to appreciate their efficacy. The dripping of condensed vapors never, to my knowledge, ever proved injurious to plants or seeds; it is not only of too short a duration, but also being of the same temperature as the air in the greenhouse, it fails to substantiate—yes, rather repels the supposition that any damage arises from it. No grooved bar has ever materially diminished this sort of dripping, as it is not altogether confined to the bars, but mostly where the glass laps, there the water collects when it cannot escape to the outside, which it often will as the glass does not always fit tightly at that place. There should, in no greenhouse, be any other than this sort of drip, and I am certain those built on the modern style admit of no other. I have held situations as gardener in many sections of this country, and been employed in all sorts of glass structures; none impressed me more favorably as being nearest the mark of perfection as did the greenhouses of Mr. Peter Henderson. A firm in this city has since erected several strictly on this plan. These houses do not admit any drip from rain, for they are as tight as a drum, and I feel

assured that grooved bars in these houses would be of as much use as gutters on the ceiling of a mansion, or a lightning rod down in a cellar. If the dripping is owing to the wretched condition of glazing, a better remedy ought to be resorted to than a miniature mill race,—one that will at the same time arrest any escape of heat, and once for all check this annoyance. This remedy is constantly within our means and reach—it is all in glazing, which should be done in the best possible manner. My experience with grooved sash bars has convinced me that their service to carry off water was very deficient in cases of heavy rains or melting snow, particularly those on long bars, which were too small in their capacity to hold all the water, thus invariably causing an overflow, not saying anything about the dirt that accumulates in them within a season, which renders the grooves entirely useless; and to keep them clean is not only a foolish waste of time, but almost a task next to impossibility. I even saw the attempt of adjusting small tin gutters while the glass was on, to answer the purpose of grooves, but with no better success, for it was soon discovered that more injury was done by attaching them, than they ever would make good.

It seems to me as sensible to advise the putting up of gutters on the ceiling of a dwelling when the roof is leaky. That the physical condition of plants is nearly the same as that of animals. I dare say no one doubts, also that low and moist temperature is injurious to either, is too, a settled fact; and the only means we have to ward off this injury is by making sure of tight roofs and walls, with the necessary appurtenances for heating. That greenhouses can be made sufficiently water-tight to disqualify the use and necessity of grooved bars in the future has been practically established in this section of the country, if nowhere else.

The "grooved" sash bar is an old idea, but since the more practical style of building greenhouses has been adopted, the "fluted bar" is rapidly going out of date.

THE CATALONIAN JASMINE.

BY CHAS. E. PARNELL, QUEENS, L. I., N. Y.

In the February *MONTHLY* for 1880, page 44, a subscriber asks for information concerning the treatment of the Catalonian Jasmine.

The Catalonian Jasmine, *Jasminum grandiflorum*, is a native of the East Indies, and was

introduced in 1629. In its native country it is an evergreen climber, attaining a height of over twenty feet, but in cultivation it is not often seen growing as a climbing plant.

The foliage is light, airy and graceful, and the deliciously fragrant, star-shaped, pure white flowers, are produced in the greatest profusion, from October to May, and it is extensively cultivated by all florists for its flowers, which are extensively used by bouquet makers.

It is a plant of easy cultivation, merely requiring a compost made of two-thirds loam and one-third well-rotted manure, well mixed; good drainage is indispensable, and a temperature of 50° will suit it very well. The plants should be cut back into shape, and planted out in the open air the first week in May, and taken up and potted carefully about the middle of September.

If large specimens are wanted, do not cut back so severely, but train the shoot on a neat trellis and allow the branches to droop. Thus treated this *Jasminum* will form an elegant specimen plant, well suited for the decoration of the window garden or conservatory.

It can also be grown as a climbing plant by planting it out in a well prepared border, or in a large pot or tub, where, if a little attention be given as to training, it will soon attain a height of ten to fifteen feet, covering a considerable space; or it can be trained up the rafters of the greenhouse. I prefer to cultivate this *Jasminum* as a pot plant, so that it can either be planted out or plunged in the open air during the summer months. When it is grown inside it is liable to become infested with the scale to which it is unfortunately very subject. This *Jasminum* is easily propagated by cuttings but fine string plants can easily be obtained by layers during the summer season.

I think that if Mrs. R. P., who inquired for a free flowering white climber, in the August *MONTHLY*, page 237, will try this plant grown as a climber, she will be pleased with it, and that it will prove very satisfactory. I hope that she will try it and report the result.

PETER HENDERSON CARNATION.

BY W. L. SMITH, AURORA, ILL.

I notice that the discussion on Peter Henderson Carnation is still occupying a place in your columns.

I suppose the position I took in regard to this Carnation in my April price list is the cause of the discussion, and as I seem to be in the minority, I must ask a little of your space to defend myself.

In answer to the article I published in April last, there appeared to the public a special circular defending the Carnation, and accusing me of personalities, etc. In answer to this special circular, in my May list, I published the enclosed article, which, as you will notice gives the opinion of most of the principal cut-flower dealers in Chicago with their names, and that they all agree with me in what I claim—that is, that the bloom of this Carnation will not keep.

I could give you the names of other cut flower dealers, and also of many greenhouse men, who say the same thing; and it seems very strange to me that while every one I see, who has had an opportunity of judging of its merits, agrees with me, all the articles in your paper take the opposite side.

HYGIENIC AND THERAPEUTIC RELATIONS OF HOUSE-PLANTS.

Read before the Alumni of the Auxiliary Department of Medicine, University of Pennsylvania, February 6, 1880.

BY DR. J. M. ANDERS, PHILA.

(Concluded from page 297.)

Deeming it necessary that the experimental data should receive supporting evidence of an unequivocal character before the efficacy of plants in the treatment of this disease would be firmly established, the writer opened a correspondence with some prominent practitioners, besides making inquiries of those with whom he came in contact, soliciting a brief statement of their observations in regard to the effects of plants on the sick.* The almost unvarying response has been in about the following terms: "I cannot help you, for my attention has never been directed to the points in question." A notable exception is the letter of my friend Dr. Hiram Corson, of Conshohocken, Pennsylvania. This letter I have already published in a previous article, but the great interest of the case described will be ample apology for inserting an extract from it here. He writes, "My mother,

*The writer would still be grateful for any interesting information upon this subject, for without aid it would be almost impossible either to establish the position taken or to correct temporary conclusions, and he wishes to make a further study of the subject. Address 1638 North Eighth street, Philadelphia.

her two sisters, and only brother all died of consumption, under fifty years of age. All the children of my mother's sisters and brother, though they lived to a good age and enjoyed good health, finally died of consumption. On my father's side there was not a taint of any disease, but great strength and vigor. Three of my brothers, active, energetic men until within a few years of their death, died of consumption at the ages of fifty-five, fifty-seven and seventy-eight respectively; and a sister died of the same disease at sixty-six. I mention these cases to show that the germs of the disease were with the family. Thirty years ago my eldest sister, then above fifty years of age, was reported by her physician, Dr. J. P., a victim of tubercular consumption, to which disease she would succumb before the coming summer. She was a lover of plants and flowers, and cultivated them in-doors and out. The spring saw her again moving among her plants, and the winter found her confined to the house, and sometimes for weeks to her bed-chamber, which, like the sitting-room, was literally a greenhouse. Visitors and friends often spoke to her of the impropriety of having so many growing plants in her room, reminding her of the tradition that they were injurious. Still, every spring found her again on her feet, in the yard and garden, nursing her plants, and every winter confined to her room. And thus she lived, year after year, until two years ago, when, at the age of eighty-five, she passed away. I have seen a few others with plants growing and blooming in their chambers, but never one who so lived among them as did my sister. Winter after winter we looked for her death, the cough, expectoration, and weakness justifying our apprehensions, and yet her eighty fifth year found her cheerful and happy, living among her plants and enjoying the society of her friends. May we not believe that the vast exhalation from these plants—water purified and medicated by their vital chemistry—prolonged her life?"

Finding that most of my correspondence yielded but barren results, I determined to avail myself of non-professional experience; and accordingly, I began visiting the gardeners and florists of Philadelphia, requesting answers to a list of questions bearing on this subject. Only a brief summary of the results obtained can be here given. Thirty florists have already been visited in this way.

Twenty of these, with ages ranging from twenty-five to eighty years, are strong and vigor-

ous, and have always enjoyed good health. They all work from ten to sixteen hours daily, and have followed this pursuit for periods ranging from six to sixty years.†

Of the remaining number, four are occasionally attacked with rheumatism of mild type, ascribing their symptoms, and doubtless justly, to wettings, the result of carelessness while watering the plants, or from contact with the wet leaves.

One of the gardeners, a boy, aged fourteen, has been at this occupation for a year, working steadily ten hours daily. Prior to taking up his present employment he had been working at the drug business for a year. While thus engaged his health failed considerably, and he became pale and emaciated. He had never been strong previously, though not to say diseased. No sooner had he adopted his present avocation than he began to improve in vigor, and now he is the picture of robust health.

Another florist, aged thirty-one, says that prior to going into the business he had "weak eyes," but that as soon as he became a florist, eight years ago, his eyes began to improve, and in a few years entirely recovered.

Still another of the remaining ones has been subject to severe colds since he has been working among plants, but he admits that he has been exceedingly indiscreet about clothing, etc., in going from the hot-house to the outer air.

Mr. W., aged thirty-five, has been in the business for twenty years, and is among his plants at least ten hours daily. Phthisis is hereditary in his father's family, and my informant himself (Mr. W.) has long since been pronounced a consumptive by his physician. He states, however, that he has always had good health, except simply the annoyance of a slight cough and a little expectoration occasionally. He is still nursing his plants and enjoying life.

This gentleman kindly related to me a brief history of his deceased brother, and also that of their father, likewise deceased; and, for the sake of convenience, I have classed them among those whose histories I obtained directly.

The brother died at the age of thirty-six years. He was engaged in gardening from boyhood up to within a year of his death,—continually at work among his plants. During all the time he followed this vocation he enjoyed fair health.

† The histories of three of these subjects have been furnished through the kindness of Professor J. T. Rothrock, to whom my wants had been made known.

A short time prior to his death he forsook his calling and took a store in the same city, and almost simultaneously he became a victim to consumption, which caused his death in a short time.

The father of these two patients, although he was predisposed to phthisis, followed the occupation of florist from early life to the age of sixty, and during all those years was in good health. When about sixty years of age, while he was assisting at the erection of a church, he met with an accident which injured his ribs (so the son says) and disabled him for work. But a few months later he went into consumption, which quickly proved fatal.

Now, may not the fact that he was unable to be among his plants have had something to do with the causation of his last illness?

From the above cases it will be seen that what we had deduced from experimental results concerning the health-giving effects of plants (which is owing to transpiration increasing the humidity of the air,—the plants acting as natural and perfect "atomizers") is entirely in harmony with what is observed concerning the effect of sufficiently moist warm air in many cases of phthisis; and if it is true, as we have attempted to demonstrate, that house-plant hygiene constitutes a valuable preventive measure where there is hereditary tendency to certain diseases, then it ought to be definitely and thoroughly understood, and it is of vital importance that it should be adopted in cases where there is a known predisposition to phthisis, for half of the cases are supposed to be preventable, whereas if the disease be allowed to develop, complete recovery is not to be expected. Furthermore, though the keeping of plants does not "cure" confirmed cases of phthisis, it is nevertheless very useful to prolong life, and by ameliorating the distressing symptoms renders existence at least endurable,—an office not to be despised in such a wide-spread and lingering disease.

Observation teaches that advanced cases of phthisis (as, for instance, where cavities exist) are benefited by a more decidedly moist atmosphere than is required in health, and hence they will require a much greater profusion of plants in the room than those who have the disease in a more incipient stage.

The plants should be well selected and kept in a thriving condition. The chief points to be borne in mind in the selection of the plants are, first, that they have soft, thin leaves; secondly,

foliage-plants or those having extensive leaf-surface are to be preferred; thirdly, those which are highly scented (as the tuberose, etc.), should be avoided, because they often give rise to headache and other unpleasant symptoms.

In order to facilitate a practical application of the data gained by experiment, the following formula has been carefully prepared: Given a room twenty feet long, twelve feet wide, and ceiling twelve feet high, warmed by dry air, a dozen thrifty plants with soft, thin leaves and a leaf-surface of six square feet each would, if well watered, and so situated as to receive the direct rays of the sun (preferably the morning sun) for at least several hours, raise the proportion of aqueous vapor to about the health standard.

This formula may serve as a guide in the use of plants for hygienic purposes; but under conditions of actual disease it will be necessary to increase the proportion of plants according to the degree of humidity sought, or as the indications of individual cases may demand.

It should be stated that, to obtain the best results, both the rooms occupied during the day and the sleeping apartment should contain plants. It was for a long time the opinion of scientific interpreters generally, that plants in sleeping apartments were unwholesome because of their giving off carbonic acid gas at night; but it has been shown by experiment that it would require twenty thrifty plants to produce an amount of the gas equivalent to that exhaled by one baby-sleeper; so this is no valid objection to their admission, and not to be compared with the benefit arising from their presence.

We have no desire to underrate other means of treatment while upholding the importance of our subject. Exercise in the open air is of immense advantage in phthisis, and during the warm season the consumptive should be moving among his garden-plants, and, if he be a lover of flowers, should assume personal charge of them. Again, no one will dispute the value of certain tropical climates for judiciously selected cases of phthisis; but the practice of indiscriminately sending patients to them is certainly to be deprecated.

New health-resorts (many of them comparable only to the patent nostrums) are constantly being pressed upon the public, but too often a trial of them brings only disappointment, and the consumptive is rendered more miserable by the annoyance of travel and the anxiety of being separated from all the endearing relations of

home. And even where travel is desirable, it is, for financial or other reasons, quite impossible in a large proportion of cases.

To have always at hand and readily available so complete and withal so agreeable a health-resort at home as that furnished by a room well stocked with plants must prove an inestimable boon to the despairing invalid.

EDITORIAL NOTES.

PUBLIC DECORATIONS.—The newspapers describing the President's western trip, all refer to the remarkably beautiful floral decorations of the parlors of the Walker House, in which the President was received by the citizens of Salt Lake City. The *Salt Lake Herald* says these beautiful decorations were under the direction of Mr. John Reading, florist, of that city.

DOUBLE BOUVARDIA.—A double white Bouvardia is among the most recent of desirable novelties announced.

ROSE PERLE DES JARDINS.—"Rosy Posey," referring to the article of W. E. Meehan, on cut flowers, suggests a doubt as to this variety being a hybrid tea.

ORCHIDS IN AMERICA.—The ease with which tropical orchids can be grown in America as compared with the old world is leading to their more general culture. A friend who has just returned from a visit to Mr. Such's magnificent establishment, speaks in high terms of their luxuriance.

ORCHID GROWING.—The old notion that orchids must have expensive houses and expensive skill before they can be successfully grown, has been very much against their culture. A few days ago we saw a Stanhopea with sixteen flowers expanded at once, and which simply had its basket hung under trees all summer; and here before us is a letter of a friend at Troy, N. Y., who says, "I commenced my collection as window plants, and grew them for several years just as other window plants. Now I have a small house for them, 30x18, and have six hundred plants."

BURBIDGEA NITIDA.—New plants appear continually, and somehow, the old ones disappear, though frequently possessing more agreeable points than the novelties. But even in the oldest collections we find sometimes Hedychium coronarium with its sweet Orchid-like white flowers,

or the no less attractive Hedychium Gardnerianum, with yellow flowers, which seem to resist the most careless treatment, under which so many good things disappear. They require no further care to do magnificently than to be planted out in a hot, slightly damp place during summer, and potted in fall, flowering in a cool greenhouse before Christmas. Any new addition to this class will be welcome.

Messrs. James Veitch & Sons, of Chelsea, England, have brought out an entirely new genus of this class, of which we give the following account:

This very beautiful plant is the type of an entirely new genus, with the habit of Hedychium, but with the lip reduced to a small stipitate blade, and with no lateral inner segments of the perianth. It grows in shady forest, in N. W. Borneo, at an altitude of 1,000 to 1,500 feet, in spots where there is little under-growth. It thrives best where the rhizomes form matted masses on moist rocks, covered by vegetable debris, producing ten to thirty slender flowering stems, each bearing a panicle of twelve to twenty flowers. The leaves are of a lively glossy green on both surfaces, and serve to set off the rich orange scarlet color of the flowers.

The above is extracted from Sir J. D. Hooker's description published in the *Botanical Magazine*, for 1879, Tab. 6403.

The plant is named after Mr. Burbidge, its fortunate discoverer, when collecting for us in Borneo, in 1878.

We give an illustration on the opposite page.

QUERIES.

PALMS.—J. D. S., Upper Sandusky, Ohio, says: "I wish you would prepare or have prepared for the GARDENER'S MONTHLY directions for the treatment and care of palms, for the benefit of those who have neither conservatories or skilled gardeners, and yet keep a few Palms as summer ornaments for the lawn. You have taught us to expect a great deal from the MONTHLY, and I hope I am not asking too much."

[Many palms, most that are in general culture, will keep very well indeed in any room secure from frost. If kept cool, they do not need much light. We know some who keep them well in cellars; but cellars are so apt to get too cool or too hot, and it is risky to try them. Some people, however, have cellars that are lighted by area

windows, and one can see when anything goes wrong. Palms delight in being planted out in the open ground in summer in a warm and not too dry a place.

The MONTHLY belongs to its readers and its contributors. The editor is their servant, and takes pleasure in doing all he can for their pleasure and information.—Ed. G. M.]



BURBIDGEA NITIDA.—See p. 334.

FISH HOOK CACTUS.—A lady from Virginia writes: "Will some of the readers of the GARDENER'S MONTHLY tell me how to treat a young Fish Hook Cactus? I received it a few days since by mail from Arizona. I have always considered that class of plants as curiously beautiful,

but know nothing of their likes and dislikes. Mrs. Loudon says, in speaking of the family of plants, "Keep them dry from October until March." This does not seem to be kind treatment, I must say, and as I wish to do the best by this plant, I shall look anxiously for the next monthly issue of Mr. Meehan's paper, and hope to find some general directions there."

[Cactuses like to be comparatively dry during winter, but not so absolutely dry as Mrs. Loudon's expression would imply. They love light. It ought not be difficult to keep it over the winter in any dry, light place, just cool enough to be secure from frost.—Ed. G. M.]

MARECHAL NIEL ROSE.—C. E. P. says: "In the April number of the MONTHLY, page 100, I notice an extract from the *Gardener's Chronicle* relative to the origin of the Marechal Niel Rose. An article in the *American Agriculturist*, for 1866, says, "It is a seedling of M. Pradel, of Montauban, France, and first flowered in this country in the summer of 1866."

ACHYRANTHUS GILSONI.—C. E. P. says: "In the February MONTHLY, page 44, W. T. Bell, in a note on Achyranthus, asks which is correct, A. Gilsoni or A. Gibsoni? A. Gilsoni is correct."

It was named after its originator, Mr. Gilson, gardener to Mrs. Barton, of Tarrytown, N. Y., with whom it originated during the summer of 1868."

HALF-HARDY GREENHOUSE PLANTS.—Mrs. R. B. E., Melrose, Mass., asks: "Will some one inform me through the MONTHLY if *Jasminum officinale* is hardy in this latitude. Also the winter treatment of *Possoquera longiflora*. It only grows for a few weeks in the summer, and remains dormant the rest of the time. Should it be kept rather dry, and in a sunny or shady position? Also, at what season does it flower, and how old must it be? Mine is not three years old. Can *Dipladenia* be grown outside of a hot-house, say in a room where *Crotons*, *Dracenas*, *Allamandas* etc., grow well? They are so very beautiful, I am very desirous of trying them, if there is any probable chance of success."

CAMPBOR AND TOBACCO STEMS.—G. M. R., Auburn, Maine. Can any of our readers answer the following inquiry. The editor has had no experience: "Will crude camphor sprinkled on tobacco stems, when used for fumigating greenhouses, kill the Mealy Bug, and is it liable to injure plants when so used?"

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

MARKET GARDENING.

BY MR. MANSFIELD MILTON.

When I came to this country I held a good many such notions as "English Gardener," p. 276, with reference to the cultivation of the soil. I thought that ploughing was not so beneficial as digging, that crops would not do so well, and all such nonsense. This was before I had tried the plow. With digging I expected to have better crops than my neighbors with their plowing, but I found my mistake, and that as good crops, if not much better, were raised when the plow was used than when the spade was, and at less than half cost. I, therefore, put the spade to one side and adopted the plow instead,

and so far have not had any reason to regret it but the reverse, as I am confident I can raise better crops by the use of the plow, cultivator and other American implements, and at one-third the cost than if I were to stick to the old-fashioned practices of the English market gardener. For the sake of his own success I would advise him, if he expects to compete successfully with those who use the plow, instead of the spade, to go and do likewise. And in the Old Country nurseries and market gardens, where they are adopting the plow instead of the spade, as good plants and vegetables are raised as under the old *regime* of the spade and spud.

Mr. Henderson and I differ in a good many ways, but I wish I could stand on the same

footing with him as a market gardener. I consider his success in this branch of horticulture as important as any he has practiced. But nothing cuts John Bull so badly as to tell him the American system of doing things is ahead of his. And I can safely say that nine out of every ten failures by gardeners, whether florists or market gardeners, is by sticking to their Old Country notions, and the sooner "greenhorn" gardeners lay their Old Country practices to one side and adopt the cheaper and more energetic method of doing things as practiced by successful men in this country, the sooner will they come to success.

THE PLOUGH vs. THE SPADE.

BY PETER HENDERSON.

An "English Gardener", from Lafayette, Indiana, in your September number, without much preface, accuses me of "stating things that are not facts," but I find when he goes on a little farther that his specifications are not quite so serious as his charge, as it appears that my "stating things that are not facts" was not a question of fact at all, but only a difference of professional opinion between him and me. Inasmuch as I claimed to believe that the English market gardeners who still stick to the spade are old fogies; while it is most evident that he holds very decidedly to the belief that they are not, or he would never have been so egotistical as to accuse any one of misstating facts without having other grounds than that.

At the risk of repeating myself—for I think I have somewhere told the story before—I will here state the incident that brought out the articles that your correspondent evidently refers to. In 1872, I made, in company with William Davidson, late of the firm of Bennett & Davidson, Flatbush, L. I., a tour through the market gardens around London; we called one day in July, in the Chelsea district, on an old and long established market gardener who worked some fifty acres; the day we happened to call he was in a great state of excitement, his whole force of forty men had left—struck for higher wages—and he dolefully said that all his ground was to dig for celery crop without a man left fit to handle a spade except his two sons. I told him I too was a market gardener of twenty years' standing, working quite as much land as he did, and that I would not allow my land to be dug with a spade, even if it were

done for nothing; for that long and extensive experience had told me that in any soil the plough and harrow were better pulverizers than the spade, and at about one-tenth of the cost. The gentleman was just in the humor to listen. If he had had no labor disturbance he would have probably (like the Englishman from Lafayette) told me that I was "stating things that were not facts," but he was more courteous, he thanked me for the suggestion, said that he had heard that some gardeners had used the plough in the Provinces, and that he would at once try it and see if he could not get more independent of "them 'anged beggars who 'ad given 'im so much trouble."

He was right in what he had heard, for we found that it was the rule rather than the exception, in districts away from London, that the plough was the implement used; for the very next day our tour brought us to a cultivator some ten miles from London in the direction of the Edgware road, where we found a most intelligent gardener, working 150 acres in close crop, who had used the plough and harrow exclusively in tilling the soil for over twenty years, and who laughed as heartily at the benighted metropolitans as we did, and accounted for their persistence in holding to the spade by stating that the greater part of the market gardens in the suburbs of London had been worked for generations often by the same families, the business descending from father to son, and who had stuck to the same methods as they had done fifty years before.

There is certainly no more reason why the plough should not be used to till nurseries or market gardens in Europe than in America, for any cultivator, worthy of the name, knows if the soil is too wet for the plough it is also too wet for the spade, and if stony ground would trammel the plough in its work it would certainly be far more troublesome for the spade. So unless the "English Gardener from Indiana" can give me better reasons than these for the continuance of such stage coach practice in these days of steam, I believe I will have to retaliate and charge him with "stating things that are not facts." My friend also gives me two or three rambling shots about something I have said sometime or other, of "firming the soil" and about "splitting the bark of trees," evidently intended for some kind of censure, but what he wants to convey or complain of I fail to make out, and so I cannot oblige him with an answer. But he tells us

this was his first attempt at writing for a magazine. Few will doubt that this statement is a solemn fact, which nobody but the most captious man would call in question.

LONDON MARKET GARDENING.

AN ENGLISH GARDENER VS. PETER HENDERSON.

BY "EQUITY," BOSTON, MASS.

I am sorry to see the unbecoming strictures of an "English Gardener," from Lafayette, Indiana, p. 276, on the remarks (p. 162) of Mr. Peter Henderson on the London Market Gardens. Instead of analyzing and disproving (if he can) the assertions of Mr. Henderson one by one, as an impartial critic would try to do, he straddles over all without attempting to disprove any single one. He says, "A florist in this country cannot know everything about gardening in England." No; nor does any gardener in England nor from England.

Mr. Henderson said, in 1872, at the time of his visit to London, plows were not used in the London market gardens, and that they were not is a fact. Also that the London gardener had not then found out that the plough and harrow can pulverize the ground better than the spade; this statement I also corroborate. But an "English Gardener" objects and writes, "John knew how to plough and pulverize before Columbus discovered America, better than Americans do now." Such an irascible and absurd statement is too ridiculous for comment.

An "English Gardener" excuses the absence of the plough in the market garden to the "ground in spring is too wet and cold," also "they do not want to get on the ground with heavy horses in wet weather to tighten the bottom, when labor is so cheap," likewise "sometimes the ground is very stony, which throws the plough out!" I maintain that ground too wet to plough is far too wet to spade. The horse-foot story is a vacant excuse, and that in or immediately around London there is not a single market garden too stony to be ploughed. If your correspondent dissents to the stony refutation, would he please individualize, and not generalize, the instance and give the name of the lessee. He says the workmen get \$3.50 per acre for digging; would he please mention the market garden of ten acres or more in or immediately around London, where men are paid in that fashion?

In justice to Mr. Henderson I will say that he and I are strangers to one another.

THE EARLY ROSE PEACH.

BY G. ONDERDONK, MISSION VALLEY, TEXAS.

In your September number, on page 270, in the department of Fruit and Vegetable Gardening, in the communication of Mr. H. M. Engle on the subject of *New Early Peaches*, I observe the name of *Early Rose* applied to a peach.

I have a seedling by that name that has been in my catalogue for ten years. It originated in this county on the premises of Mr. Preston Rose, and was named after him. It is in several catalogues under the original description: "*Early Rose*, medium, round, rosy red, firm flesh, rich, juicy and sweet, ripens about June 25th, free-stone." This season corresponds to Wilson's *Early* here. Will not the originator of the *new Early Rose* select another name for his peach, and thus avoid unnecessary confusion? *Our Early Rose* belongs to the Spanish strain now rapidly coming into notice in the extreme South, and the variety will be of permanent interest and value.

EDITORIAL NOTES.

KILLING CODLING MOTH AND CANKER WORM.—There seems to be no doubt but that water, in which Paris green or London purple has been put, and pumped over the trees through a hose from a garden engine when the fruit is first forming, will prove a perfect security against codling moth and canker worm. We do not like the idea of using these poisonous substances in things we directly eat. It does not seem so bad on potatoes, which are in the ground, washed, peeled and boiled before eaten. If exceeding great care be used to apply the poison long enough to get thoroughly washed off by rain before eating, it may do.

PLUMS.—Geneva seems to be making a mark in the Plum trade. We noted last year how abundant and how profitable they were in that city. This year the trade has spread, and we noted cases with prime Green Gages, very numerous in Philadelphia, marked S. C. Willard, Geneva, N. Y., on them. Prices seem to rule a trifle lower than last year, but this is to be expected, as knowledge of the way to grow them spreads. Still, when people come to know

that good plums are to be had in the market the demand will keep up the price.

FIRE BLIGHT AND YELLOWS.—In regard to fire blight, Dr. J. G. Hunt, in a communication to the *Gardener's Monthly*, some years ago, demonstrated to our entire satisfaction that it was caused by a small ferment fungus. Professor T. J. Burrill has recently confirmed this view. In like manner it has been clear to us that the fungus attacking the roots results in the yellow of the peach. Prof. Burrill now finds a similar ferment fungus in the diseased peach trees, which may well be an outgrowth from the larger form at the roots. We have felt that these causes could not be disputed, and have insisted on their presence as being quite satisfactory in accounting for the disease. But the confirmation by Prof. Burrill will be of great value.

NEW GRAPE DISEASE.—A recent telegram from Europe says: "A Geneva dispatch says, 'A new vine pest has appeared in the Reinthal, in the Canton of St. Gall. It is said to resemble the potato *oidium*, but it is much more virulent, grapes affected with it becoming rapidly putrid. Several vineyards have been completely devastated by the malady, which is believed to be of American origin.'"

DR. RYDER'S AMERICAN FRUIT DRIER.—The circular, issued by the Drier Company of Chambersburg, Pa., explains the principles on which the drier is formed. We are glad to know that the drier is meeting with so much success. It was the first successful effort to place a cheap fruit drier in the hands of the people. Thousands of dollars worth of fruit—once wasted—have been saved by it. The discovery was a national blessing.

MUSHROOMS.—A newspaper paragraph tells us that "Charles A. Dana, editor of the *New York Sun*, recently spent about \$3000 in the construction of a cave for the cultivation of mushrooms. He has employed a professional mushroom grower to take charge of it and naturally anticipates, it may be supposed, after so liberal a provision, that the results will prove compensatory."

QUERIES.

HENNETTA PEACH.—We have from the raiser specimens of this. It is a large yellow peach, very much in the way of the *Susquehanna*. It

is said to be a very late peach, ripening in Kentucky some seasons as late as 5th of October. By this it would seem to be later than the *Susquehanna*, and this should make it a valuable variety.

MOORE'S EARLY GRAPE.—September 8th we received from Mr. Moore some bunches of this grape, and find it well worthy of all that has been said of it. It is quite as good as Concord, and a very large and showy fruit.

SECKEL PEARS FROM THE ORIGINAL TREE.—We were regaled recently by a few pears from the original Seckel tree, by the kindness of the present lessees, Messrs. John and Samuel Bastian. They were not as large as the tree has given in its younger days, but were as delicious as ever. We may further note that the land on which the old Seckel Pear stands, belongs to the Girard estate, held by the City of Philadelphia, and not by the gentleman named by our correspondent.

ASPARAGUS AND GRAPE INSECTS.—W. H. P., Kingston, R. I., says: "My Asparagus for two years has been eaten by what at first seems to be a small black fly, which later turns to be a kind of slug or worm. These infest it from the latter part of the time of cutting for use, until after I have ceased to cut it. They eat the leaves until it looks as if a fire had run through it. Can you tell me a remedy for it or what will destroy the insects and not injure my Asparagus? And please tell me the best remedy, preventive or destroyer of the little green fly in the graper." [Tobacco smoke will kill aphids in the greenhouse. If the Asparagus beetle is here referred to, we do not know that any effectual remedy has been discovered.—Ed. G. M.]

NEW NATIVE PLUMS.—Mr. Charles Black says: "We send you to-day by express a box containing a branch of the Native Plum sent you last September to show you its productiveness. The trees are all loaded with fruit, as much so as the twig sent. When not so full they grow much larger. Let them ripen before eating."

[We have not entered with much enthusiasm into the "native" plum excitement, because none of them seemed anywhere near the European race in quality, and our experience of the native varieties in their wild locations has given us no faith in any "curculio proof" character. These from Mr. Black are the first we have had which give us any hope of a race of equal good flavor with the others. We may here take

the opportunity to beg our correspondents when they prepay packages, to mark on the packages, "Paid through," or we are often asked to pay over again. We have refused many parcels this year on which we have been asked to pay, and this will explain to many correspondents why no notice appears of their fruits or flowers in our pages. We paid this package from Mr. Black, although from what we know of his sense of justice we were quite sure he had already prepaid it. But this is not enough. Parties sending packages prepaid to friends should always write, or see that it is written, "Paid through" on the packages.—Ed. G. M.]

NEW WHITE GRAPES FROM COL. WILDER.—First-class white grapes are not numerous and there is room for more. Col. Wilder sends us a sample of a seedling of which he gives the following account:—"I send by mail a few grapes from a second cross of Rogers. First, a native crossed with the White Chasselas, which produced Massasoit or Rogers No 3, then Massasoit by Queen of Nice which gave the berries now forwarded. These sent are mere tags from a bunch exhibited ten days since. The first fruit gathered was on August 31st. The bunches are long, frequently shouldered like the Queen of Nice, and their quality quite as good as the latter. This vine has grown in an unfavorable location and has been neglected until this year. I think it is as healthy as my other vines, but not strong as the first crossing of Rogers, and I cannot remember that it has been subject to mildew. Like all my vines it has been covered in winter."

The fruit had slightly fermented before reaching us, but there was enough merit left to show that Col. Wilder's judgment of its value is not too high. The Editor had the pleasure of a brief run through Col. Wilder's grounds recently of which we hope to tell some time soon. Absence from home more or less this summer has caused some matters to accumulate in our hands which we hope to straighten out shortly.

HAYES GRAPE.—With some excellent fruit comes the following letter from Mr. Moore:—"I forward you per mail to-day a few berries of our new White Grape—'Hayes.' This grape is a pure native, and was raised from seed at the same time as 'Moore's Early.' It is very hardy, free from mildew, and with us a week to ten days earlier than Concord. We hope next year to be able to furnish more fruit for testing, but

on account of an exhibit at Boston, &c., are unable to do so this year. I hope, however, that there will be enough so that you can judge somewhat of its quality. I should be pleased to hear what you think of it. This grape was awarded a First-class Certificate of Merit by the Massachusetts Horticultural Society, Sept. 14th, 1880."

BROWN BEURRE PEAR.—A fine specimen of this delicious old pear was placed on our table by Mr. Galloway C. Morris, from a tree in Philadelphia. If it would do as well everywhere, it would be an admirable kind to grow, but the general impression is that it is uncertain in these latter days. What do our readers know about this?

GRAFTING PEACH TREES.—A Canada Subscriber asks: "Would you please let me know through the columns of the GARDENER'S MONTHLY if peach trees can be successfully propagated by grafting on the collar in the same manner that nursery-men work apple trees? Also, is there any objection to propagating them in this way? An answer will greatly oblige, yours truly."

[In the Southern States peaches are commonly propagated in that way, and are deemed just as good if not better than budded ones.—Ed. G. M.]

FRUITS FOR KANSAS.—T. R., Chanute, Kansas, asks: "What kind of apples, pears, plums and cherries will thrive best in that locality? I am about to locate permanently there, and feel that I need some advice so as far as possible, to avoid mistakes."

[Will some correspondent not too far away from Chanute kindly furnish the desired information.—Ed. G. M.]

MOSS MULCHING.—Mr. Henderson handed us the following note, in addition to his article, but too late to go with it.

"Whether for large specimen plants in private collections or for the window plants of the more humble amateur, this plan of mulching will be found to be exceedingly useful, as plants, even when to some extent pot-bound, may be carried forward in health and vigor for three or six months longer without the necessity of re-potting."

SEEDLING GRAPE.—A Catawissa correspondent writes: "I send you this day, express pre-paid, one box of grapes, seedling of the Salem, but of far better habits. With us the Salem does not ripen its fruit, mildews generally, and is pretty tender for our climate. The grape I send you

has proved perfectly *hardy* with us, does not mildew, is a larger and, we think, a sweeter grape than the Salem. I have kept the grape until the holidays. Would like your opinion of it."

[This is a shorter and wider bunch than the Salem. The flavor was delicious. It is the nearest approach to a well ripened Black Hamburg grape that we remember to having come before us. The fruit has the same fleshy (as distinct from pulpy) character.—Ed. G. M.]

ISHAM SWEET APPLE.—W. H. P., Kingston, Rhode Island, says: "I see notice of the Isham Sweet apple in your paper recently, in which after speaking of the tree you speak of the fruit as follows: Of much finer grain, more juicy, and a much better keeper than the Bailey Sweet; *quality best, keeps through the winter.* The underscoring is mine. I want to find the best rich sweet apple which *will keep through the winter.* Do you know the Isham to be such? If not the best, please name the *best kind of winter sweet* you know suited to this Rhode Island latitude."

[We suppose no one has fruited the Isham Sweet in Rhode Island, and the best for local culture depends wholly on local experience. We should be much obliged if some Rhode Island

correspondent will tell us what sweet kinds have been found to do best there.—Ed. G. M.]

FRUIT INSECTS IN CALIFORNIA.—R. S., San Jose, under the date of August 8th, writes:—"Our fruit trees here are now infested with what they call the '*Red Scale Insect.*' It has destroyed thousands of trees. Concentrated lye has been used with some success—quantity one to five of water. The insect discolors the bark underneath to a purplish red hue, found upon scraping the infected parts. Rumor says it has been brought here in orange boxes, and that it is quite common in Sicily; be that as it may, there is quite a scare about it, and many fear the total destruction of their trees. Meetings have been held for discussion as to the best mode of getting rid of him; cannot you give us a point? I think your article on '*Scale on Orchard Trees,*' in this month's number would do the business. Those who have fought him have done so in the winter after leaves are all gone, and the insect, to my way of thinking, impervious and dormant secure in his scale. Would it not be better to fight him in the spring at or about the time he is hatched out and leaves the scale to make new locations and found new colonies? It seems to me this is the best time for its destruction. The task is a gigantic one, as in some orchards not a tree but what is infested."

FORESTRY.

CUMMUNICATIONS.

FORESTRY IN NORTH AMERICA.

The Pertinent Laws and Regulations, and the Future of North American Forests.

BY JOHN BOOTH, KLEIN FLOTTBECK, GERMANY.

Translated for the GARDENER'S MONTHLY by G. W. DE B.
(Concluded from page 307.)

A Boston authority of the highest national repute has addressed us some very valuable reports on these questions, from which we extract the following:

"Of the twenty-six States composing the New England, the Middle the Western and North-

western divisions, up to the Rocky Mountains only three grow more timber than their own consumption; and in these the trees, owing to the great demand, are cut down so indiscriminately that logs of 6 to 8 inches diameter are frequently found in the saw-mills. If this course is continued another decade, we'll see also these three States at the end of their timber. Still the woods are spoliated as if our welfare depended on their speedy disappearance. What is to come after mocks all description, for not a single one of our many industries can prosper without a plentiful supply of wood. There are more than enough theories and learned treatises on the influence of forests and extensive woodlands

on the vegetation, climate, waters, etc., of a country; but has any one ever thought seriously of how it will be with us after the disappearance of our rich forests? Who ever took the trouble to calculate how our finances will be affected by being forced to export \$500,000,000 annually, merely to supply our own market with timber? An amount which the merchant navies of the whole world could not transport, as according to the census of 1870, it is almost 13,000,000 cubic feet in excess of their united tonnage. From the absolute indifference shown by the authorities and the greater part of the people, one might almost be justified in presuming that they believe it to be possible to exist entirely without wood, or that some day we might begin to sow timber as we do rye or wheat. But it takes a century to grow a respectable pine forest. Many, too, believe that when the United States have lost their woodland, Canada will still be able to supply us for centuries to come. From personal knowledge I can, however, assert that two or three years of supply to the United States would bring Canada to the same stress as her Republican neighbor.

"A very near future must prove to our government that it would have been a wise measure to favor the introduction of foreign timber, instead of banishing it from our shores by high protective duties."

Already the consequences of this wholesale vandalism in the treatment of forests and woodland, that not so very long ago seemed actually inexhaustible, show themselves very clearly in the United States, as regards climate, etc. It is the same old story all over. In Spain, France, Italy and Asia Minor, as well as in the United States, a remarkably retrograde condition, notably in agricultural products, has been developed since the destruction of the wooded districts. Many Americans consider these devastations a necessary evil—somewhat like one of those ills to which all children are subject, and because so many of the European countries have passed through them, they consider it but natural that the United States should go through the same experience. They forget, however that at the time when the wholesale devastations of European forests occurred, but few individuals were cognizant of the evils they would cause; to-day all the world knows them, in America no less than in Europe. The Americans are under no obligations to buy an experience which they already have.

A report sent us by an undoubted authority on the subject of American forestry, proves that since 125 years the necessary moisture of the soil in North America has decreased seven per cent. every quarter century in consequence of the wanton destruction of woodlands, and that a further continuance of these must most seriously affect the climate of the whole continent, to the great detriment of health as well as of the fertility of the soil. That the picture is not overdrawn we can easily prove from the decline of horticultural products. From many States, in which but comparatively few years since peaches were grown on free land, this luscious fruit has entirely disappeared, and many other garden products with it. According to the "Report upon Forestry" Southern Indiana until shortly had a regular peach crop, while now it is the rule for such crops to fail—almost the same is the case with regard to the far more hardy apples and other fruits. Light frosts in May and June are no longer a rarity; the wheat harvest was in many places entirely killed by frost; in others from 20 to 40 per cent. were lost. In many States, in which at the commencement of the present century spring used to happen in February, it is now delayed until end of April, and the growing of wheat has become altogether problematical! An official report from Illinois, (July, 1879,) on the harvest prospects, climate, etc., says that the crops had suffered greatly from the want of rains in spring and the continuing cold winds; and the cause of both is referred to the indiscriminate destruction of woodland.

As a further consequence of cutting down the forests must be mentioned the increase of ground squirrels and locusts. The latter that used to flourish on the woodless prairie lands, have extended their devastations to where the forests have been cut down or destroyed by fires; the farmer that formerly lived in the woods alone, migrates to where these have disappeared into fields and gardens—the damage to grains and fruits reach almost an incredible amount, as the plentiful and good food makes this destructive vermin multiply unusually quick.

In Southern California the ground squirrel has become a veritable plague; in the Northern districts it is less numerous. An interesting forest in Northern California, that has its equal nowhere on earth, may be mentioned here as its preservation is of the greatest significance, not alone to California, but for a large part of West-

ern America. "*Sequoia sempervirens*," belonging to the same family as the well-known California giant trees, the "*Sequoia gigantea* or *Wellingtonia*," reaches similar dimensions and, contrary to these, is still found in numerous and compact forests, which begin in Northern California in the Humboldt district and stretch Southward to Sonoma, only occasionally broken by other formations, for a length of some 150 miles, by an average breadth of five to eight miles. A rich soil, that is regularly inundated every spring, lets these trees reach a height of 150 feet or more, and single trees have been known to give 60,000 feet of timber, at a value of over \$1000.

In the "Proceedings of the California Academy of Natural Sciences" we read, "*The Sequoia sempervirens*" is one of the very few coniferous species that shoot forth from the root, and so rapidly that they soon cover the whole soil, suppressing every other growth. After the trunk has grown to a diameter of two to three feet, it resists fire, and it is a common occurrence to see trees, whose branches have been entirely destroyed by fire, covered all over with young shoots as with ivy. These woods have the most beneficial influence upon the neighboring regions, as they condense the moisture of the atmosphere, which then falls either as light rain or as one of those heavy fogs which the farmers value as particularly fruitful. But here two narrow gauge railroads are being built, the quicker to transport the immense quantities of timber to the saw mills. Dr. Bolander, in a treatise written for the "California Academy of Sciences," says, "It is my firm conviction that the disappearance of the Sequoia forests—and they will very speedily cease to exist if the government does not protect them by very stringent laws, which are rigidly enforced—will make California a barren desert in every sense of the word. On these forests depends the future weal and woe of our State. They alone are our safeguard. Wise laws have in Europe newly planted devastated regions, and in the course of two or three generations new forests have grown under judicious care; but no government, nor no human care and power could recall to life these Sequoia forests of California if once destroyed."

Thus much of the forests and forestry in the United States; in conclusion we beg to say a few words in reference to the same in British North American possessions. From an official report on "Colonial Timber" to the British Parliament we gather that in none of the six provinces into

which the Dominion of Canada is divided, laws have been passed for the regulation of replanting and growing the cut-down sections of woodland; and only in the Province of Quebec two ordinances have been passed in relation to unauthorized cutting of timbers and forest fires, both, however, remain entirely ineffective. In Nova Scotia all trees are cut without reference to size, and the forest fires aiding, another generation will no longer see the mighty forests of yore. In New Brunswick extensive forests are still found, but Weymouth Pines of more than a few inches diameter are rarely found, and the Hemlock Fir is almost extinct. As early as 1697 the governors of, at that time, French Quebec were urged to pass some law for the protection of timber lands, since then the devastations have continued for nearly two centuries, nor has the law of 1874, forbidding that from May 15th to Oct. 15th fires be lit nearer than half a mile distance from any woods, brought about any change. A law (Dominion Act of 35 Victoria Cap 23, Section 51) for the protection of forests contains somewhat stringent regulations as to the cutting of timber on government lands, and entirely forbids the felling of pine trees which measure less than twelve inches diameter above the root; but it has never been enforced! The report for 1877 of the "Council of Agriculture" to the Minister says, that even more timber was destroyed by fires than was cut down.

In Ontario some species of trees, notably the Weymouth pine, *arbor vitæ* and birch tree, have already become so scarce that they hardly count as an article of commerce. On Prince Edward's Island the oak, the elm and the ash have almost entirely succumbed to the indiscriminate cutting down and forest fires. Really magnificent forests are still found in British Columbia, consisting chiefly of *Abies Douglasii*, *Pinus Strobus*, *Pinus ponderosa*, *Abies canadensis* and *Abies Menziesii*. To the local authorities these forests seem inexhaustible, and they would indeed be so under wisely protective regulations, but, says the Report to the British Parliament, it is to be feared that in consequence of the demand from those provinces where the timber has begun to decrease, if it have not entirely disappeared, the consequence of a total want of national legislation will in a very near future be felt here too. The occurrence of forest fires is a frequent one, and these are the more dangerous as most of the trees are extremely resiniferous.

What then are the conclusions to be drawn from the above remarks for the future of North American Forestry.

We have seen how all authority is wanting to enforce even the simplest regulations on forestry. The only man in America who ever understood to carry out his absolute will in this, as every other respect was Brigham Young, who in this one matter has our decided sympathy. The communistic theory that the "forests are the property of every single American," and that he has a perfect right to cut down as much timber as he needs, is so widespread; the corruption in official circles, an unavoidable consequence of perpetual rotation in office, is so general; the necessity in which both parties find themselves of not offending the mass of voters, is so great, that we can hardly call unjustified the assertions of competent and patriotic American authorities as to the impossibility of enforcing any protective laws on forestry. In view of such condi-

tions we can neither hope for any beneficial results from the "Commission to inquire into the European Laws on Forestry," asked for by Mr. Secretary Schurz in his annual report to the President; nor expect Professor Sargent, of Harvard, to achieve much by the three years' survey of American forests, with which he has lately been entrusted. A more competent man, or a better authority on all incidental questions, could not be found; but of what use can laws be if there exist no authority to enforce them? It is to be feared that, unless affairs take some entirely unexpected turn, the words of the "Report of the Secretary of the Interior" for 1877 will come true; that "in twenty years, at the most, the United States will no longer be able to fill the demands for home consumption for their own forests," and that they will have to import at an enormous outlay what they might have had at a trifling expense! What the consequences will be in other respects, we have already foreshadowed, it is impossible to overrate their importance.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

VIRGINIA AUTUMN SCENERY.

BY MISS M. EVELYN HUNTER.

Our own swamps and low grounds are displaying attractive pictures for us to treasure in our memories of these autumn days, and bring forth to brighten a dismal cold evening in winter. There is one that I recall now, seen only a few days since, a low meadow with steep hills on either side, overgrown with willows, alders, sweet gum, and other of our forest trees. There is one branch of gum that has turned a rich dark purple, while the rest of the tree is still green; over an alder bush the wild clematis has climbed and thrown a spray directly on the purple branch of gum. This falls like a grey mist, sparkling with dew drops made brilliant by the morning sun. None of our wild climbers are as graceful and beautiful as the clematis, first with its perfectly formed clusters of white flowers, with just a tint of sea-green color in them, and then later on, as

I saw them on the alder, when the flowers had fallen and left the mist-like clusters of seed in their places. Looking far up to the end of the meadow we see the true morning mist rising from the wet ground and rolling upward in a golden cloud, as the sunlight seems to dance against its billowy masses, and then to fall back in a shower of gold on waving heads of golden rod, brightened here and there with bunches of crimson, velvet-like cardinal flowers.

At the foot of the hill, on the western side of the meadow, the trees are literally covered with grape vines and Virginia creepers. From the first, large clusters of purple grapes hang temptingly among the cool green leaves, and the creepers show amid scarlet and green leaves, bunches of dark blue berries on red stems, that give them a poisonous appearance. Here, too, a variety of beautiful native grasses may be found and used for winter decoration. But feeling sure that I am giving only a dim idea of the beauties of "Nature's Picture Gallery," I will give up the attempt

ASCLEPIADACEÆ.

BY W.,
VIRGINIA.

I note with pleasure reference to this most interesting family by your correspondent (page 245), and it has often occurred to me that its several members have been too little known and appreciated by lovers of flowers.

In addition to the species mentioned by her, I would call attention to two or three others equally beautiful, and perfectly hardy in the same latitude (Virginia).

First, I find a variety of a variegata, described by Wood as *nivea*, pure white, blooms in the early summer, exceedingly beautiful, and worthy a place in your "Wild Flowers of America." Then later in the season comes *A. amplexicaulis*, distinct in color and style of growth from the former, but about the same height, two feet. Both of these are indigenous to seaboard Virginia.

A third, far surpassing these, is the delicate *A. perennis* (*A. parvifolia*), not wild, but cultivated in borders here, a perfect little gem, half shrubby, a good grower, perpetual bloomer, perfectly hardy and covered the whole season with a succession of dainty clusters of pearly white flowers; both flowers and foliage so light and fairy-like, one would not imagine it belonged to the usually clumsy milk-weed family. When given sufficient space it branches freely, and the bushy shrub is soon covered at the extremity of each shoot with the delicate white clusters. It readily grows from cuttings.

The old *A. curassavica*, a native of Florida, is also seen in gardens. It is not hardy with us nor of as compact growth as *A. tuberosa*, but more brilliant. In leaf and growth it much resembles the oleander, and is worthy more general cultivation.

When opportunity offers, I wish to say a word about two other valuable plants for summer blooming in this section, *Plumbago capensis* and *Jasminum grandiflora*.

EDITORIAL NOTES.

CONVOLVULUS ARVENSIS.—Cultivators will do well to look after this pernicious weed, which is fast taking the country for its own. It is so very pretty that it is likely to appeal to sympathy to let it stand a while. A recent issue of the Montgomery County, O., Horticultural Society says it has appeared at Dayton.

"The most attractive of the strangers among us is the *Convolvulus arvensis* found growing on Mr. J. Peirce's place. This delicate little morning glory was never before in this part of the country, and it is not known how it came here, as it was supposed to be confined to the sea coast, from Maine to Carolina, where it had been introduced from Europe. I exhibit to the society, a study made from this plant by Miss Mary Forrer, showing how beautiful the whole vine is, with its tender twining stem, small, somewhat sagittate leaves, and flowers about an inch in diameter, that are white, delicately tinged with pink. But pleasing as this plant is to the eye, it is said to be a pernicious weed, and farmers and horticulturists must guard against its dissemination, as it spreads rapidly and has the name of being an exterminator of all plants in its neighborhood."

CLIMATE AND GRAPE CULTURE.—Some years ago the writer of this purchased an old property on which was an arbor covered by the Catawba grape. For the sake of the shade the vines were permitted to remain. This season, for the first time in ten years, the fruit was perfect and delicious. There has been nothing more done this year than others, and the fact goes to show that the secret agencies of nature as affecting fruit culture, are of a very active kind.

RETROGRESSION.—Mr. Berckmans has found that seedlings of the wild goose plum go back to a poor variety. Late peaches generally reproduce their kind with some exactness; but judging from his remarks as we find them given in the *Southern Enterprise*, he has not had as good success with early ones.

A NEW VARNISH PLANT.—It is said that an iron tool that had been found in Africa neglected after cutting down one of the large Euphorbiaceous plants of that country, was found years afterwards as bright and free from rust as when used. On this hint experiments were made, and the euphorbia gum is found a perfect preservative of iron from corrosion. The species of Euphorbia is not named. So says *L'Horticulture Belge*.

PECULIARITIES OF SEASONS.—There seems to be no accounting for peculiarities of seasons. For years the Belgian honeysuckle, near Philadelphia, has been mildewed and aphid-covered that no one cared for it. This season it has been in perfection, and its large clusters of rich colored

sweet-scented flowers has brought it back to popularity. Equally remarkable is the number of shrubs blooming here in October. The *Tecoma grandiflora*, *Viburnum nudum* and *Cercis japonica* are all in full bloom before us as we write.

THE "SHITTIM" WOOD OF SCRIPTURES.—Much discussion has been had on what is the shittim wood. A new cedar has been discovered in the Isle of Cyprus since its cession to the British, which is believed to be the wood intended. It differs from others of the genus *Cedrus* in its longer leaves and small size of the cones. It is nearer to the cedar of Lebanon than to the Deodar cedar. It was found by Sir Samuel Baker in the Cyprian Mountains, between the monastery of Kyker and the town of Krysokus.

QUERIES.

GENTIANA ANDREWSII.—J. R. S., Rahway, New Jersey, sends specimens which are both *Gentiana Andrewsii*, and says: "I send by mail two *Gentians* for name. The dark blue with closed

flower I take to be *Andrewsii*. The skill shown by the humble-bees in entering the closed flower is very interesting. They accomplish it without injury to the delicate petals, and while almost concealed from sight, make the entire circuit of the flower, thus becoming very efficient sowers of pollen."

ABNORMAL BUDS.—Mr. Chas. Henderson writes: "I mail you to-day a couple of joints of *Stephanotis floribunda*. You will notice that the bud instead of coming out at the axil in the usual way, has shown a disposition to experiment. I have taken the liberty of bothering you to look at it, as I have not seen it occur before, though doubtless in your wide experience the same, or a similar freak has often been brought to your notice."

[This is a very interesting case. The bud instead of being at the base of the leaf, in the axil between the leaf and the stem, has been carried up two inches, and to near the base of the leaf stalk above. It shows that there is no necessary connection between the leaf and the bud at its base. Those variations from regular rule are very interesting to students of botany.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 18. BY JACQUES.

Correction.—Notes and Queries was not favored with proofs of his notices picked up from all sources, except the newspapers, else would *Bamber* wood have read *Bamboo*, and John Penn's home in England would have appeared as Stoke Park, not "State."

The late meeting of the Society for the Advancement of Science, it is encouraging to know, was the largest ever held. Professor Asa Gray read an essay on the Vegetation of the Rocky Mountains, which will be published in Hayden's report, and he entertained the members in the Botanic Garden. He is now in England.

The flower beds around Horticultural Hall at

the Fairmount Park, Philadelphia, have the past season surpassed anything of the kind yet seen, as we hear foreigners as well as our own citizens, and again the editor of the MONTHLY frequently declare. The richest carpets do not equal what was here exhibited by the Landscape Gardener, Mr. Miller, and surely they were vastly more interesting as well as pleasing.

Quinces.—The man who shall cure the quince fruit from its knots, and give us a fair, equable, preserving material as free from worms as a good apple, will do the housekeeper a prodigious service. Some cultivators conquer the curculio enemy, why not the quince destroyer?

Tin is said in *Harpers' Magazine* to be transported from England to Chicago, made there into vessels of use, taken back to England in a manufactured state, competing with English

made articles. Surely we are feeding our relatives, and gradually superseding them in various manufactures.

The indebtedness of man to the vegetable world is illustrated by the two substances of gutta percha and India rubber; but for these the great progress in the arts would have long waited development; the telegraph by sea is indebted to the former for insulation, and many processes and conveniences are promoted by the latter. The trees which yield the largest supply of the best quality of caoutchouc consist of various species of *Hevea* of South America. Some portions of the northern districts, especially in the province of Para and parts of the valley of the Amazon are covered to a great extent with *heveas*. The abundance of these in Para may be judged of by the fact that this province alone exported 7,340 tons in 1877. Among the species the *Hevea Brasiliensis* attains the height of sixty or seventy feet; the *Hevea Guianensis*, a similarly magnificent tree, likewise abundantly produces caoutchouc. The leaves are handsome and adapted to greenhouse culture by their deep color and general beauty, especially the *Ficus elastica*.

California, Colorado.—A gentleman now in California writes of what must be to an American a novelty of interest: "I am just going to Mr. Cooper's (at Santa Barbara) to be present at the whipping of his extensive grove of almond trees! From thence I shall stop at the new institution for canning fruits, especially apricots, of which I hope to send a case via Cape Horn, packed with American almonds." We hope this is not a mere bravado. The *Nineteenth Century* has a pleasant article from the Earl of Dunraven, who has purchased Este's Park and improved it by various modes. A visitor thither this summer, who has seen the Yosemite Valley, and nearly all the great sights, declares Este's Park the most beautiful scene in the world; though not so grand it is perfect in its grown trees, fine mountain views, &c., &c. The hotel of the Earl closes early in the season, but we advise parties to make preparations to visit this place next year.

Collectors of all sorts exist in a highly populated and civilized community. Rare butterflies, rare plates, any rarity finds purchasers. As an illustration, two eggs of the extinct great Auk were lately sold by auction in Edinburgh, both being purchased by Lord Silford, one at £100, the other for 102 guineas, probably the largest sums ever

paid for an egg, with the exception of that of the Moa, a single specimen of which was sold at the same place in 1865 for £200. The writer was dining in England with a collector of rarities when, in the middle of the meal, he was called out to exhibit his treasure of an Auk's egg, and barely got back to tea. He valued his egg some years ago at £50, so they are rising in price.

EDITORIAL NOTES.

GARDENING IN THE SOUTHERN MOUNTAINS.—EDITORIAL LETTER:—It had long been my desire to see the deciduous magnolias and the many beautiful trees and shrubs of the Southern mountains in their native homes. But the country in which they grow is, in a measure, inaccessible to the hasty traveller, and the editor has but little time to spare from his pen to go jogging along for weeks over rocks and hills where the iron horse dares not set his foot. However, there is a time when all men must rest. An unusually hard year at pen work made me unusually susceptible to temptation, and when three of my associate members in the Academy of Natural Sciences said to me last May, "we purpose to take our wives for a month or two into the North Carolina mountains; cannot you make two more?" it did not take long to increase the party to eight. About the middle of June we bade good bye to the city of Brotherly Love, and started on our journey of twenty-five hundred miles, stopping a few days at all the important points along the road. In our leisurely stroll we took in Baltimore, Washington, Richmond, Danville, Greensboro, Salisbury and across to the southern part of North Carolina, then northwardly through the mountains to the Ohio river, and back through the Shenandoah Valley by Harper's Ferry for home. This outline shows that we were not in a favorable region for superior horticulture, but yet the experience in this line, as well as in the observations on native trees and plants, were interesting in the extreme.

In the way of gardening as an art, and one of the refining influences of civilization, we saw very little after crossing the Potomac, but in so far as a love of flowers and neat yards are concerned the illustrations were abundant. In some of the larger Southern towns like Lynchburg and Staunton, small, neat, well-kept grounds were

abundant. Lynchburg especially seems to be a very thriving place. The number of new houses, of what might be called the wealthier class, was greater than I noticed in any other place we visited, showing the city to be remarkably prosperous. The grounds around these newer houses all showed the owners' disposition to have something nice. In regard to the trees, shrubs and flowers, the many numerous and beautiful introductions of late years were almost wanting. Some few Cedars of Lebanon, Deodars, and similar things that were popular in their introduction years ago, and now about thirty years old, showed that progress in these lines had measurably stood still. The cheap mowing machines, which make our little places look so beautiful, and which we now find in our smallest hamlets, were very much missed. The sickle and the scythe still did duty as the lawn worker. I have no doubt there are some about, though it was not my good luck to meet with them, and the number of places where they were not, shows at least that they are not in general use. But the number of places which exhibited a genuine love for flowers was very gratifying to see. If there were few new kinds, the old fashioned flowers, family heirlooms, were well cared for. In many of the country districts houses would be fairly embowered in flowers, though not a flower pot could be seen. I do not remember seeing a flower pot throughout the whole mountain district between the Shenandoah and the Cumberland. The plants were grown in starch boxes, old kettles, tomato cans, shells or any thing that would hold a little earth. Some of these plants were wonderfully well grown in this primitive way. I saw Fuchsias three or four feet high, with hundreds of flowers from top to the box, and perfect in every respect that would easily take some of the twenty dollar premiums at our horticultural fairs.

In regard to vegetable growing the mountain region referred to offers remarkable advantages for what is known as the cool-country vegetables, such as peas, cabbage, parsnips, lettuce, celery and such like. Of course as to the matter of early vegetables the warmer sea-board States will have the run; but throughout the whole summer season these vegetables would grow here to perfection, and while there would be a fair trade in many of them, for seed raising purposes they would offer rich reward. At one tolerably fair hotel in the mountains we had rarely any

other vegetables but potatoes, and I pointed out to the proprietor the great capabilities he had for these summer luxuries, but he insisted I was mistaken, "for," said he, "I brought salad plants from Chattanooga and set them out last spring, and they all went to seed." But every intelligent gardener would know that such plants would "go to seed." At the White Sulphur Springs, the supply of vegetables was remarkably meagre, and this was explained, that they had all to be brought chiefly from Richmond or other large sea-board centre. It has been said that the whole of the enormous interest on the English national debt is paid by her turnip crop. These feed sheep in winter—the wool supplies the manufacturers—and so it goes on to the end. But the mountain region of North Carolina and Virginia is capable of raising turnips and maintaining sheep to an extent that would surprise old England. At present the great difficulty in the way of extending root or vegetable growing here is the ease with which cattle can be kept here after a fashion, and the distance anything raised has to be sent to market. Cattle roam the hills winter and summer, and hence there is no barn-yard manure, as the colder regions afford, where cattle must be housed the long winter. With no manure there can be few vegetables. The chief dependence through here is on artificial fertilizers, which have a tremendous sale. Then the markets are too far off. A good fellow in North Carolina told me that he raised 100 bushels to the acre of turnips, and cabbage as large as the top of a flour barrel, but the only way to dispose of them was in trade to the grocery man. His cabbages were valued at two dollars per one hundred, while the "prents" he had to take in pay for his cabbage were estimated as worth sixteen cents a yard. The opportunity, however, for building up a local trade for garden products is remarkably good. Hundreds of streams of water run in every direction and the water power might be employed for machinery for all sorts of industrial enterprises, and the operatives be good customers to the gardener or farmer. But the power goes to waste. A few grist mills and saw mills appear once in a while, and this is about all. No one seems to think of building up home markets for their garden crops. Cotton and tobacco for Europe, early fruits and vegetables for the North, or hogs and cattle for the larger cities, with perhaps hotels for the accommodation of travellers seem to be the great objects of ambition. It seems to me that if I were

interested in building up the farm and garden interests in any special degree I should begin by urging that these wasted water powers should run into mills and factories, and then look to these operatives to buy the farm and garden produce, instead of sending it hundreds of miles away.

I have little doubt, however, that all this will be perceived in time. Evidences of an increased attention to these matters strike one near many of the larger cities. It is indeed surprising that so much has already been done. Only imagine a country in which every dollar of money was swept away; houses and buildings torn down by the war; scarcely a fence left standing; all the businesses connected with the arts of peace neglected, and those of war useless with the surrender. Possibly no people ever resumed the great businesses of life under more depressing circumstances. They have had to build themselves up again out of the ground; to grow up again anew as the trees grow; and have, like the trees, to wait some years till the harvest of wealth is ripe.

The Shenandoah valley especially shows a wonderfully revived spirit. Most of the farm buildings and fences were absolutely destroyed here, but now new and mostly tasteful buildings and barns have been built, and scarcely a trace remains of the fearful havoc and waste of fifteen years ago. These new buildings are generally surrounded by good gardens and orchards, and one could not but feel that if so much has followed so soon after absolute ruin, there is hope for good gardening before many years roll by.

THE GARDENER'S MONTHLY FOR 1881.—As the magazine is about to enter on its twenty-third year the publisher would be favored by any assistance its friends may give in making it known to any of the newer votaries of the art of gardening. The publisher is proud to believe that there are very few persons in the United States who have taken an intelligent interest in the higher branches of gardening but are found on the subscription books of the GARDENER'S MONTHLY; but there are always new additions to the circle who would welcome the monthly visits of the magazine, did they but know of its existence. The agricultural papers with their horticultural departments do grand service to gardening by encouraging the growth of fruits and flowers in a general way; but there becomes a time when gardening as an art and science, distinct from

mere agriculture, becomes a passion and pursuit, and it is to this eclectic circle the GARDENER'S MONTHLY ministers. The members of this distinguished circle are too far apart to be discovered by the ordinary methods of advertising. The GARDENER'S MONTHLY has to be made known (outside of its business agents) chiefly by the good will of its friends; and the publisher hopes the forthcoming subscription season will bring from his old well-wishers a good crop of new friends.

HE ONLY STOLE A FLOWER.—In Philadelphia, there is what is called a "prison agent," who goes through the penitentiary and has power to procure the release of prisoners, or a shortening of the time of those he may think deserving. The report for the year is before us, and amongst other items, we find the case of "two boys who were accused of stealing flowers from a garden. As they had only taken a flower, the agent employed counsel," by whose efforts they were acquitted. Every once in a while we see some newspaper paragraph reflecting severely on some individual because he dared to prosecute some "respectable person," who "only took a flower," or an apple, or may be a bunch of grapes; and if perchance after spending perhaps fifty dollars, besides time and vexation, in thus protecting his property, and the thief gets sent down to prison for thirty days or so, there are stinging comments on the justice which sends a person to prison for stealing a ten-cent bunch of grapes, when he would perhaps have received no more punishment if he had taken a three-hundred-dollar horse.

It is strange that it should be necessary to point out that laws are made as much to assert and defend principles as to mete out measure for measure. An able-bodied, useful man is of more direct value to society than a babe. We do not say it was "only a babe," and sentence its murderer to a year's imprisonment, while we hang the murderer of the useful man. On the contrary, the law is presumed to protect more energetically the weak than the strong, and for this reason alone the fruit and the flower grower should have more legal protection than the owner of a horse. The latter has strong personal reasons for locking up his horse, and for prosecuting when in spite of all care the horse is stolen,—but the fruit man loses some to-day, some to-morrow, and so on, till everyone on the tree is gone. He cannot lock up his tree, or build a

high wall all around it, nor can he keep a sentinel day and night before it. He cannot catch all, who took all between them; he can only "make an example" of the first one he catches; and then is the cry of "he only took one. He is a respectable man." Herein we see that the fruit or flower-grower is at a great disadvantage. He is weak. He is as a child before the law, and instead of leniency, the strongest efforts of the law should be put forth to protect him, and he should not be made the butt of ridicule, as now. In fact, the man who has the courage to prosecute the thief who took "only a flower," or "only one bunch," deserves the thanks of the whole community, and the more so when the offender is "a respectable man."

AMPELOGRAPHS.—This is the name the French give to literary works on the vine. Mr. A. S. Fuller is described as *un savant ampelographe Americain*.

C. M. HOVEY.—On a recent visit to Boston it was a great pleasure to meet this venerable horticulturist, still in good health, and full of energy. As editor of *Hovey's Magazine of Horticulture*, Mr. H. was for many years the chief representative of horticulture in America, and did yeoman service in its cause.

NOTICING CATALOGUES.—We often get requests to notice catalogues, which, had we space, we should be glad to do. If we had but a local circulation, and only a few score came to our table, we might do it; but few have any idea of the immense number that come to our table. It would not be fair to notice some and not others; but to notice all would be to refer to from one to two hundred a month. Occasionally when we see some items of news which are not likely to appear in regular advertisements, we refer to such catalogues, and this is the only principle which our confined limits allow us in catalogue notices.

THE TOWN OF GREELEY.—Referring to our recent notice of the remarkable growth of this city of the desert, the *Democratic Eye* of that city suggests that the name of Henry T. West should pass into history with those of Meeker and Cameron, as the three pioneers.

KEEPING ONE COW.—New York: Orange Judd Company. This little book may, perhaps, legitimately come under the Reviewer's pen in a horticultural journal, as many a man, who has but

one little patch of garden, would like to keep just one cow, if he could. This little book is designed to show just how this can be done; and illustrations are taken from those who have been successful, both in the North and the South, where the winters are mild as well as where they are severe. We may say of this, as of many similar undertakings designed to show profits, that the illustrations are useful hints, though not always as examples. Take for instance the case given of a "New York business man" who made out very well by his one cow. He was fortunate enough to find a laboring man who was willing to come morning and evening, every day, and milk, clean, and feed the cow, for \$1 per week. Very few would be so lucky as to get such convenient attention.

Most people find the cost of selling milk about half the receipts. Nothing is charged against the "profits" here, because the one cow owner was fortunate to have members of his family to attend to serving, and because the next door neighbor took all to spare. Of course these advantages add materially to the "profit." Still it is very useful to know what one man has done. We may not have first his advantage, but almost every one has some advantage peculiarly his own if he will but look around to see just what they are.

WHEAT CULTURE; by D. S. Curtiss. Orange Judd Company. New York: This little treatise is issued to increase the product, improve the quality, and decrease the cost per bushel of the great staff of life—objects that will commend themselves to many readers.

AGRICULTURAL COLLEGE, SAPPORA, JAPAN.—**THIRD ANNUAL REPORT.**—This institution, in which Americans have been the chief teachers under the Japanese Government, shows by this report to be in an excellent condition. Professor Penhallow has charge of Horticulture and Botany.

QUERIES.

GLADIOLI OR GLADIOLUSES.—M. B. asks:—"In a recent number you say 'Gladioluses,' when referring to the plural of Gladiolus. Other papers use Gladioli, which certainly is the Latin plural." [We have been over this so often, it seems hopeless to be understood if we are not already. We use the word to represent an English idea, and not a Latin one. We are not writing in Latin

for our readers, but in plain English, and our English word must follow English rules. Gladiolus in our sense of the word is the English or common name of a bulbous garden root; and it is no less English, because its botanical one happens to be the same. If your sense of propriety is shocked, why do you not write to those "other papers," who, while they write Gladioli in one line, write coleuses, verbenas, and so forth, in the other. Moreover, if we are to write

gladioli in its nominative plural, why not follow it through all its changes in number, gender and case? It has always seemed to us that those writers who have urged the "reform" forget that we were dealing with a common—practically an English—and not with a Latin name. —Ed. G. M.]

PINDARS.—Mr. W. T. Harding and Miss Mulford kindly inform us, that "Pindar" is the local name for pea nut in the South.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

HUMBUCS IN HORTICULTURE.

ESSAY, BY PETER HENDERSON.

(Concluded from page 318.)

The nurserymen present are no doubt better posted in the swindles practiced in their particular department than I am; but operators engage in different lines in different parts of the country: for example, we have never yet seen in the Eastern States anyone trying to sell an apple tree bearing blue apples as big as melons, as we were told at our meeting, at Cleveland, last year had been successfully done in Ohio and Illinois. Still we have men of fair ability in the nursery swindling line, one of whom last winter succeeded in disposing of hundreds of winter-bearing grapes, by carrying with him a few good bunches of the White Malaga of the shops.

One great detriment, not only to the florist but to the purchaser, is begotten of these swindles in horticulture. The purchaser of flowers in our markets must have his plants in bloom, because he has been at times so swindled that he must now see what he buys. In New York, the amateur rarely buys from the grower, but from the agent or middleman who sells in the market stands or street corners. These, whether men or women, are generally entirely ignorant of the nature of plants, and most of them have no responsibility, and they rarely fail to make their wares accord to the wants of the purchaser—nearly every plant is hardy, everblooming, and has all the qualities desired by the buyer.

But now and then these swindles become a serious matter to the victim. Some years ago, a typical Englishman, who had been a green grocer in Covent Garden Market, London, found his way to New York; he at once discovered an almost entire absence of Cauliflowers in our markets, and, what few there were, were sold at prices four times that of London. He soon made up his mind to make his fortune, and, at the same time, show the Yankees something

they did not know. He duly selected and prepared the ground for an acre, and one day in May he sallied into the market to procure his Cauliflower plants. This he found no difficulty in doing, for at Dutch Peggy's—in those days the headquarters for all kinds of herbs, plants and seeds—they were to be seen by the wagon load; 10,000 were procured, the quantity for his acre, and, duly planted, they began to grow apace. He had planted 1st of May. If it had been in England, his Cauliflower heads would have been ready about the 1st of July; but something was evidently wrong in the Yankee climate. His cauliflower grew through June, through July into August, only to develop into fine specimens of drumhead cabbage, then of hardly the value he had paid for them as cauliflower plants. He got out of the business thoroughly disgusted; and, in telling his sorrowful tale to me a year afterwards, he related that when he went to expostulate with old Peggy about having blasted his prospects, before he could get a word said, she recognized him as a customer, and demanded to know if he did not again want any more early cauliflower plants.

I have said old Peggy was also a vender of seeds. It is now something over thirty years ago that a young florist presented himself before her and purchased an ounce of Mignonette. Ever alive to business, Peggy asked him if he had tried the new Red Mignonette; he protested there was no such thing, but Peggy's candid manner persuaded him, and fifty cents was invested. The seed looked familiar, and when it sprouted it looked more familiar; when it bloomed it was far too familiar, for it was Red Clover. Peggy has long since been gathered to her fathers, and I have entirely forgiven her for selling me the red mignonette.

Perhaps there is no swindling that is more extensively practiced, and which so cruelly injures the operators of the soil, as that of adulteration in fertilizers. The great mass of our farmers and gardeners are poor men, who can ill afford even to pay for the pure fertilizers necessary to grow their crops, and to pay money and high freights

on adulterations worse than useless, is hard indeed. The ignorance of those dealing in such wares does much to spread the evil. A fellow came into my office last summer with samples of a fertilizer, nicely put up in cans, which he claimed could be sold in immense quantities by the seedsmen, as it had not only the wonderful properties of invigorating and stimulating all planted crops, but that it at the same time would kill all noxious weeds.

I need not say that he had waked up the wrong passenger, and that he made a rapid movement towards the door. Yet, notwithstanding the impudence and absurdity of such a claim, the scamp was enabled to prowl around the vicinity of New York for weeks, and, undoubtedly, sold to hundreds.

If he had said he had a cannon from which, when grape shot was fired into a crowd, it killed only enemies—never friends—the one claim would have been as reasonable as the other.

Another species of humbugging which, though it can hardly be called swindling, is somewhat akin to it. I refer to the men who claim to have secrets by which they can accomplish extraordinary results in propagation and culture of plants. I can well remember, in my early days, that the nursery propagator was looked upon as a sort of demi-god, possessing secrets known only to himself and a favored few, whose interest it was to continue to throw dust in the eyes of every young aspirant after knowledge. The door of the propagating house was locked and bolted, as if it were a Bastille, and even the proprietor (if he were unfortunate enough not to have practical knowledge) was allowed entrance only as a special favor; for his propagator was an autocrat, of whom he stood in awe and reverence. But, since the advent of horticultural publications in America, particularly during the past fifteen or twenty years, the "secrets" of these pretentious fellows have had such ventilation, that now nearly every operation of the greenhouse is as well understood by the tens of thousands engaged in the business, as the operation of the farm is by the farmer.

The most of these pretenders to this secret knowledge of horticulture are foreigners, though occasionally a native tries it on. Some fifteen years ago, when the grape vine mania was at its height, an old Connecticut Yankee pretended he had discovered a new method of propagating the grape, that he would impart for a consideration to the highest bidder; he issued a profusion of handbills to the trade, asking for bids, modestly requesting the receiver of the handbill to hang it up in a conspicuous place.

I sent my copy to my friend Meehan, of the GARDENER'S MONTHLY, saying that the pages of that magazine were the most conspicuous place I knew of to comply with the wish of the old gentleman. Mr. Meehan not only inserted the advertisement gratis and in the most conspicuous manner, but he did more, for he appended below the advertisement a few remarks I had ventured to make on the subject. This opened the ball, and for six months the pages of the

GARDENER'S MONTHLY became the battle ground for the opinions of the discoverer and myself. But the gratuitous advertisement did not avail him much, for he and his secret soon passed into oblivion, and was heard from no more. There are no secrets in horticulture; the same laws that govern the germination of a seed, the rooting of a cutting, or the taking of a bud or graft, are the same as they were a thousand years ago, and any one pretending to have any secret knowledge in the matter is either an ignoramus or an impostor.

EDITORIAL NOTES.

FLORAL DESIGNS.—The florists of Philadelphia had a gala time at the late exhibition of the Pennsylvania State Agricultural Society. The highest premium for the most original floral design, \$80, was taken by Hoopes, Bro. & Thomas, of West Chester. Queens on thrones, suns, moons and stars, old-fashioned fire-places, chimney-corners, star spangled banners, steam-boats, and such like, were made out of flowers, and drew immense crowds.

Flowers as emblems are beautiful things. Worked into crosses, crowns, anchors and such like, they still have an expression; and in connection with human affairs are very pleasant associations. The hidden meaning rarely fails to please. It is wise to encourage these sympathetic sentiments. There is no doubt many a pretty idea yet to be brought out that will give pleasure to thousands. But it is not easy to find what sentiment is at the back of some of these things, or what earthly use they serve. Indirectly they have a use. They draw a crowd which pays its money and gets its price,—and the said money may then be devoted to useful purposes.

FINE GERANIUMS.—The proceedings of the New York Horticultural Society says that Messrs. Hallock & Thorpe, of Queens, Long Island, N. Y., exhibited "Double and single Pelargoniums, (by which we understand bedding geraniums), showing superior culture and the touch of a masterly hand, which have never been equaled in New York."

This description approaches what we have long contended Horticultural Societies should furnish for their exhibitors. There can be little doubt if this justice were regularly done, exhibitors would be numerous. It would be an improvement if a little fuller description of the "superior culture" were given. People in distant parts would be interested in knowing how near their own specimens of culture came near to those of a "masterly hand."

BOUVARDIA, BRIDE OF BROOKLYN.—At a recent meeting of the New York Horticultural Society a certificate of merit was awarded to Mr. Geo. Krick for this Bouvardia. Its merits are that it always remains white, and never has the pink tinge of the Davidsoni or Vreelandii.



R. B. Smith

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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Number 264.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

We have frequently urged the importance of planting places very thickly at first, in order both to produce an immediate effect, and also because the shelter which one another affords makes the trees grow with greater health and vigor, than when exposed singly to the force of wind and sun. At this season no better employment can be found than in thinning out these thick planted places. It will of course require much judgment; but one fond of trees, and the effects which they produce, will not be much at a loss. Sometimes it is hard to bring one's self to cut down a tree which one has watched grow for so many years; but it must often be done if we would preserve the symmetry and beauty of our places. When there is any question as to the proper tree to be taken away, the size of the place may help one to decide. A tree which will in time occupy much space can be more easily spared from a small place than one which will never transgress a limited space. Indeed, except for the purpose of rapid growth to nurse more valued trees, large growing things should not be tolerated in small places. The green grass which is the charm of all gardens soon departs when large trees are about.

Of course, this talk about thinning out, brings us to another great winter employment, that of pruning. There is no very great amount of science required for this, and yet some judgment

is necessary. This is often done with little more reason than a boy has for whittling a chip—merely to have something to do. For, notwithstanding the many papers that have been written "on the philosophy of pruning," the naked question, "When is the best time to prune trees?" is one with which the gardener is continually bored. The keen-edged gardeners give the cutting reply, "any time when your knife is sharp;" but the more good natured say, "It depends on what you want to cut for." The street cutter "wants to keep the tree head low," and cuts down to make them branch lower; cutting in winter does not have this effect, so that unless one has some other object to combine with it, such as to clean the tree of bark scales or the larva of other insects, or the giving of employment to some half-starved tree carpenter, the work might as well be left undone. If you want a branch to push strongly at the point where you cut a part away, *prune in winter*. If your tree has branches crossing each other, or has half dead branches, or anything tending to spoil the form or symmetry of your tree, prune in winter; but as a rule the less pruning is done the healthier will be your trees, for it may be accepted as a rule in gardening, that all pruning, whether in winter or summer, is a blow struck at the vitality of the plant.

Sometimes we have to sacrifice a good object to gain some other point. So in hedges: The plants are usually trees. To devigorate them

and keep them bushy is our great object. The principal pruning is therefore in summer. The winter pruning is simply to keep them in shape. There is, however, one kind of pruning which just suits both the principle and the season, namely, thinning out where thick planting has been adopted, as it is now by all who want a new place to look well without waiting too long for the charm.

There are many beautiful plants which we can enjoy if we only take care to keep them from the sun in winter. The Evergreen Ivy is one of this class. In Pennsylvania it will rarely live on the south side of a building without some injury; while on the northern side, it is usually able to get through. This shows that it is not a question of the thermometer, for it is much colder on the north side of a house than on the south; but it is rather through the more rapid escape of moisture on that side. But the lesson is of value in teaching us to shade any valuable broad-leaved plant which we may have. The Japan Euonymus, the Oregon grape or *Mahonia aquifolia*, the Rhododendron, and other similar things all do very well in this section of the country, if anything be scattered lightly over to prevent injury from the sun.

Nothing "pays" like surface dressings of manure or good soil to evergreens and ornamental trees. Life is too short for mere natural growth. It is a pardonable vice to wish for large trees. Put on two inches of good stuff, and see how they will go ahead.

Very few understand that an occasional change of soil is very beneficial to flowers in beds, though all know how important it is to flowers in pots. There is nothing better than surface soil from an old pasture, taken off about two inches deep, and thrown into a heap with about one-sixth part old hot-bed dung to partially decay. In addition to this "staple" item, smaller quantity of different matters should be gathered together for peculiar cases, or particular plants. Peat, for instance, will be found very useful for many kinds of plants. This is not, as is often supposed, mere black sand; but a spongy, fibrous substance from the surface of bogs and boggy wastes. Sand should be collected sharp and clean; the washings from turnpike ditches are as good as anything. Leaf mould is best got already well decayed from the woods. That one makes for himself from rotten leaves is seldom good for anything; it is always sour and seems "indigestible" to vegetation. A load or

so of well-decayed cow-manure is a good thing for the gardener to have by him, as all those plants that dislike our hot summers, and want a cool soil to grow in, prefer it to any other manure. A small pile of hot-bed manure is almost indispensable to the garden.

Much will, in many places, be required for dressing of the lawn, which too often is really starved for want of nutriment. The modern practice of using mowers, and leaving the short grass to serve as a mulch is a little good; but not near enough to keep the grass in good heart. A top dressing every other year, or every three years, will be of great benefit to the best made lawn. This top dressing may not be of rich or expensive materials. The scouring of ditches will do. Indeed this kind of material is the better, as more of it can be used; and thus shallow places, which often exist in lawns of some pretensions, may be filled up. We have seen good lawns made in this way from rough places, as bad as if the grass had been sown on a piece of ploughed ground, without any rolling or harrowing down. The grass sown comes through the filled up places, and a smooth lawn in this way can often be had without the trouble and annoyance of ploughing up and seeding down again, a practice which is often employed where the work was not in the first instance well done.

COMMUNICATIONS.

PARK DECORATION IN THE WEST.

BY PETER HENDERSON.

While attending the National Convention of Nurserymen at Chicago, in June last, a number of us made a hasty visit to the parks of that wonderful city, and were perfectly surprised at the splendid results that have been obtained in such a brief time—results that, I believe, are not equalled by any of the parks of our great eastern cities.

The "South Park" of Chicago we first visited, the floral department of which is under the charge of Mr. Kanze. Unfortunately, the day we called there our time was so limited, that I took no notes and could only judge of it in a general way, to be exceedingly well handled. There is quite a range of greenhouses, probably 10,000 square feet, with extensive ranges of cold frames where the plants used in bedding are grown before planting out, upwards of 100,000 of which grown in five-inch pots were set out last season.

South Park, from its extent—1050 acres—and the improvements in the roads and walks still going on, does not present such a finished and unique appearance as it will do when these improvements are completed; but every thing that had been done showed skillful and careful management, indicating that the Commissioners had been fortunate in selecting a man with talent comprehensive enough to grasp the multitude of details in such an undertaking.

"Lincoln Park" to the north of the city has an area of only 250 acres, but is a perfect gem in its way. The floral department of this park assumed form only three or four years ago, and it is difficult to understand how so much, so well done, could have been accomplished in such a brief time. Already upwards of 10,000 square feet of well constructed greenhouses are up and filled with an extensive and valuable collection of tropical plants, exceedingly well grown, embracing many large and fine specimens. As in South Park, the greater part of the greenhouses during the winter and spring months are used for propagating and growing plants that are wanted for decorating the grounds in summer, but this extent would be entirely inadequate for that purpose were it not that the plants about May 1st are shifted and transferred to the cold frames of which there is capacity enough to hold 125,000 plants grown in five-inch pots, which must require an area of at least 35,000 square feet. These plants are set out about June 1st, and being grown in five-inch pots, are then fine plants, large enough to give an immediate effect—not quite as fine, of course, as when growth has vigorously started later, but yet sufficient to make the beds at once attractive. On the main lawn in front of the Mall was a flower bed representing a Knight Templar's cross with the square and compass in the centre, a very handsome design surrounded by an arabasque in the Byzantine style, the lines of which are defined by white shells.

Some captious criticism has been made on the taste of this arrangement in using the shells, but leaving the question of "propriety" aside, nothing in flowers—particularly at a distance—could produce such a sharp, well-defined and pleasing line of white. Another beautiful bed representing a butterfly, exhibited well the unusual skill shown all over in these decorations. When in Europe a few years ago, I thought that nothing seen there in planting equalled that of Battersea Park, London, so we would here say that nothing

seen in this country, in our opinion, comes up to the planting in Lincoln Park, Chicago. The originality of design, the well judged blending of color, the healthy vigor of nearly every plant, showed that there was a master hand to lead; this we found to be Herman De Vry, a young German gardener, who has, for the past three years, had charge of the floral department of Lincoln Park.

The Commissioners of the Chicago Parks may well feel proud of their work. Only fifteen years ago the grounds, now such a paradise of green lawns, beautiful trees and brilliant flower beds, was an open prairie. The transformation seems magical, and stands out in strong relief against the tasteless, niggardly method of those in charge of our parks of New York and Brooklyn; where twice longer in existence, and backed by all the wealth of these great cities, there has not been for years a flower bed fit to be looked at. Many of the florist establishments of Chicago already show the western energy and enterprise, but of course, are as yet far behind the long established concerns of the Eastern States. On leaving Chicago our next visit was to Dayton, Ohio, where the reports of the fine planting at the National Soldiers' Home there induced us to visit. Report had not exaggerated. The Soldiers' Home is finely situated some two or three miles from the city on high undulating grounds, which are laid out with broad and finely kept roads and walks, judiciously arranged through the finest lawns I have ever seen in this country. The grounds of the Soldiers' Home answers all the purpose of a park to the citizens of Dayton, and has the additional interest of its grounds being filled at all times, in fine weather, with about five thousand "men in blue," to whom the Home seems a home indeed, for no one can look upon—many of them—scarred veterans, the most of whom are now grizzled and gray, without being struck with their free and easy carriage and contented looks, as if each soldier felt an ownership in the ground on which he trod. They are fed, housed and clad in the best manner, and every thing else done to conduce to their comfort and happiness. Any one spending a day at the Soldiers' Home at Dayton, and observing the manner in which our nation's defenders are so luxuriously cared for, would never hesitate for a moment to believe that our republic, at least, is not ungrateful.

There are quite a number of well built greenhouses, embracing a most extensive variety of

plants, showing that the manager is well up to the times in all that is interesting, new or rare in plants. One of the most marked features of this department of the Home was grottos of rock work planted so as to produce the most pleasing effect. Our lady friends who accompanied us were in ecstasies over this, and hung around it for hours. The planting in masses and in ribbon-line beds was excellent, and was almost equal in extent to the parks at Chicago. Large letters of crimson on the green velvet lawn made us "Welcome" so plainly, that we felt as if our good Uncle Sam was almost taking us by the hand.

GARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

II.

No plant has stood the drouth more unflinchingly than *Vinca rosea*. Planted out it keeps green and stocky, and is in blossom all summer long. Raised from seed in a hot-bed or warm greenhouse in February or early March, nice plants are had for planting out in May. It is so easily raised from seeds that propagation by cuttings is seldom resorted to. It is largely used for massing in flower beds.

Retinosporas have grown better than any other of our evergreens.

Mignonette vine, *Dioscorea batatas* and *Maurandia Barclayana* have grown splendidly at the base of a south-facing wall, where the soil is very dry and the situation rather roasting.

Among red-leaved bedding plants there is nothing, so far, to surpass *Alternanthera paronychioides* major. Most *Alternantheras* do not assume their bright coloring till the end of July, but this variety is always brilliant; summer and winter are alike to it. It is an excellent grower, withstands the drouth admirably, and requires just the same care as any other *Alternanthera*.

The variegated *Stevia* takes the lead among white-leaved strong-growing bedding plants. All the year round it retains its variegation well, is reliable and a vigorous grower, and bears any amount of clipping with impunity.

As a carpet of green no plant of my acquaintance nearly equals *Veronica repens*. The little Mints grow so thick and soft that they damp off in patches. *Arenaria glabra* is a good plant for a green carpet, but nothing to be compared with

this little *Veronica*; neither can *Thymus micans* nor *T. Corsicus*. *Veronica repens* grows so densely and flat as to form tough sods, and judging from its behavior here during the past two years, keeps as closely to the ground as if it were shaven. A deep green color in exposed and half shaded places, never damps off when not buried by other plants, is hardy, a great spreader, and can be multiplied *ad infinitum*. To these may be added a complete covering of lovely blossoms in spring. As soon as they have done flowering, the flower spikes should be sheared off, in order to beautify the carpet.

A NEW METHOD WITH TUBEROSES.

BY MRS. M. D. WELLCOME, YARMOUTH, MAINE.

I call it a new method, because it seems to be such, or at least a method not generally known. It has been very kindly furnished me by a florist resident at Concord, N. H., who was induced to write me by seeing my "Talks About Flowers" in the *Boston Journal*. Believing it too valuable to be kept within private limits, I send it to the *Gardener's Monthly*.

The florist says the main point may be an old idea, but in a large range of horticultural reading he has never seen it mentioned, nor heard of its being used except in the instance he cites. His previous experience is, we believe, like that of many others. He says:

"I have grown tuberoses for the past ten years with varying success, but the main difficulty has been that so long a time has been required in rooting and stocking them, that the first frost finds a large proportion of them just budding, or not commenced to spindle. Had tried various places, hot-bed, furnace-room and hot-house, and all the early spring months and December, but that made no difference; they would not start until they got ready, and I lost many bulbs from rotting. Two years ago a friend who had had a similar experience, surprised me by showing me plants about the first of May with fine tops that had been planted but three weeks, and the first of June had stalks a foot high, while my bulbs, which had been planted the first of February, did not commence to sprout until June, although they had been in a hot-house under favorable conditions.

"Now the reason was simply this: He had taken his bulbs and not only pulled off all the small ones attached, but had dug out with a sharp knife all the small eyes, and had cut off the whole of the tuberous part, leaving only the bulb

proper. This I tried on one-half my bulbs, with the result that they were nearly two months earlier than those planted the same time that I did not cut. Although this seems to be rather severe treatment of the bulb, it has given such good results that I propose to continue the practice."

Perhaps this article may open the way for others to testify on this point. My own experience is that of late blooming. Of the dozen I planted in the border in June, five were finely budded when taken up in September, and have since bloomed. Two others had just begun to spindle, and on one fine buds are developed; the others, with one exception, look as though they would not stalk. Next year we purpose to try this new method.

THE AMERICAN BANNER ROSE.

BY EDWIN C. JELLETT.

In the introduction of new plants, there has been none of late years which excited more interest than the above-mentioned rose. And if we were to regard the various opinions which we have heard expressed, it is considered one of the most beautiful and marvellous of flowers by one side, and the other side pronounce it absolutely worthless. Concerning this rose I have been told that it is a "beautiful Bon Silene color," marked with white stripes "and always appearing true to the markings." Having seen the rose, I must say I could not see anything beautiful about it. Indeed, I thought it as unattractive as it is possible for a flower to be. It is only the few outer rows of petals in which the "markings" are distinct, and the centre of the flower is so indistinct as to be almost colorless, —botanically speaking. And as to its constant marking, I would say it comes a pure "Bon Silene" color very often. But is this curiosity, so-called, original in this rose? In the "Amateur Rose Book," by Shirley Hibberd, you will find the following:

"In the *Revue Horticole*, 1870, appeared an article by M. Du Breuil, in which he suggested a definite way for ensuring the production of striped and spotted flowers of varieties that are normally self-colored." And also he said: "Having visited the garden of an amateur I was shown several standard roses, and among them 'Geant des Batailles,' of which, on some trees, all the flowers (which were of a fine, deep red),

were marked with numerous spots of pale rose color. I observed the same peculiarity in other varieties of a light red, such as Gen. Jacqueminiot. All these rose trees in other respects were in a very fine condition of growth, and presented all the other characters of the varieties to which they belonged." The "American Banner Rose" in this latter mentioned respect, most certainly is distinct from all other roses known to me. Indeed, the "thick, leathery" leaves are the only things especially remarkable about it. And it may be distinct, in that it was procured from a "sport," as M. Du Breuil tells us, that the roses seen by him were procured by budding, and explained it in this wise: "Being obliged, for want of a better, to take from the bottom of a shoot some shield buds which apparently had no eyes, he obtained from them a shoot which produced a rose bush, the flowers of which presented the peculiarity mentioned, and after repeated experiments always obtained the result named." The bud being in an immature state, in perfecting itself, partakes of the nature of the parent stock; this is how we understand it. For explanation by Shirley Hibberd, see page 217 of his Rose Book, and also see "Gardeners' Magazine," March 8th, 1873, a few extracts of which are given in the rose book, (page 218). In regard to their roses, will it be a success practically generally, that is, are its merits sufficient to make it a profitable rose to grow? I think not. The rose is a very free bloomer, but if all the flowers are allowed to open, they will be very indistinct, and many of them, as I said before, without any marking whatever. In my opinion it is only in large towns, where fashion reigns supreme, will this rose be in demand, and then only till the novelty wears off.

GLADIOLUS COMMUNIS.

BY J. M.

Among hardy plants of attractive appearance which one seldom sees in collections, is the *Gladiolus communis*. It flowers in June with the roses. It does not generally make such a strong growth as the tender kinds, but yet, in good soil, it pushes up to the height of two to three feet. The flowers are purple outside, with a lighter shading inside, and with a light cream stripe in the centre of the three lower petals. It is not common to see among tender kinds one of such a deep purple as is the color of this hardy one.

TREE ROSES.

BY E. FRYER, DELAWARE, OHIO.

Some years ago I tried experiments with tree roses, working them by budding four feet high on the common Prairie roses as stocks. The first winter they were carefully tied with rye straw. It proved an exceptionally hard winter; at one time reaching as low as 31° below zero. As a consequence, every upright stock was frozen down to the snow line. A few that were bent down and covered with earth only survived. This was rather discouraging, there being about twelve hundred strong stocks in the block.

The following season about one-half the number was budded, selecting, as in the first season, a strong shoot from each stock, cutting away all others, working over some of them twice, and some even a third time to make sure that every stock had a living bud by the end of the season. In December all were laid down lengthwise of the rows, covered with earth, and so remained till spring, when they were drawn out, stems quite green and buds all alive. Owing to the great strength of the stocks, I had hopes of having a fine growth from the buds when once they had reached the spring in safety. Every sprout that appeared on stem and base of stocks was carefully rubbed off during the summer. Most of the buds pushed vigorously early in the season, and some made tolerably fair heads by the end; but, the great majority failed to come up to my expectations in size. About one third of the stocks blackened in spots and pieces, something in the manner of pear blight, cutting off all communication between root and bud; whole stems dying even after the buds had made several inches of growth. The stocks were grown on strong rose ground, no manure was used. The varieties used as stocks were Prairie Queen, Anna Maria and Milledgeville. On the whole, the experiment seemed too much of a failure and was discontinued. I presume other parties may have done the same thing with more or less modification, but men don't generally like to record their failures, forgetful of the fact that in horticultural operations, we learn something from a failure.

Now the why and wherefore of this failure will be attributed by intelligent, practical men generally, to the action of the sun on the bare stems of the stocks. To offset this theory, I can state the fact of a success by a German gardener at Columbus, in this State, whom I visited a few months since. He grows tree roses on a small

scale, but having done so for quite a number of years—some of his standards being now fifteen years old—establishes the fact that it can be done and successfully too. When I first saw the plantation above referred to six years ago, there were some three to four dozen standards, three to four feet high, in his front yard, with very large heads; besides these he had a small nursery of a few hundred in the rear of his city lot, in different stages. I saw the large plants in their full blooming season, and they were a grand sight to behold. Such immense heads of *Hermosa*, showy *Bosanquettes* and glowing *Agrippinas*, and of the hardy hybrids *Lord Raglan*, *Baronne Prevost*, *Geant de Battailles*, &c., bloomed in unusual size of flower and splendor of coloring. Such, indeed, as would compare favorably with many specimens of the same in the grand old roseries of the old world. The stock used for these roses is the much abused *Manetti*.

From these facts it seems clear that our prairie roses are unsuited as stocks for tree roses. The objection to the *manetti* is that it sprouts so much from the root, but the prairie stocks with my little experience, sprouted a great deal too, from the collar of the plant. The price, however, of tree roses is care. Care in selection of stocks, budding and the general details of culture. I doubt whether we can grow them as isolated specimens; in groups they will be more secure, if sufficient room be allowed for laying them down in winter.

It is probable that south of the Ohio, standard or tree roses can be cultivated without the trouble of laying them down in winter. The cost, however, of laying them down anywhere will not exceed ten dollars a thousand; so that judging from the price that commercial men have to pay for imported stock, it will pay to grow them in our own country, if once we can decide on the best stock to work on and get rid of the fear of climatic difficulties.

Would be pleased to hear from any one, through the MONTHLY, who has tried experiments, or has anything to suggest on the subject.

OSAGE ORANGE HEDGES.

BY R. C. MCMURTRIE, PHILADELPHIA.

Raising Plants.—The seed can generally be purchased of any seedsman. I bought mine at Landreth's. I soaked the seeds in water for forty-eight hours before planting. When treated thus they sprouted almost as freely as could be

desired. Those not soaked came up sparsely and very badly.

The ground was prepared as for ordinary garden seeds. The seed was placed in rows, about one foot apart, and about one inch deep. I kept the plants carefully weeded from their first appearance till the autumn. The result has been that plants raised one spring are fit for setting out as hedges the next spring.

Preparing Ground for the Hedge.—In the autumn the line of the ground on which the hedge is to stand is dug as a trench, about eighteen inches wide and one foot deep. The earth is laid on the side of the trench and the bottom broken with a pick. In that condition I left it during the winter for the frost to do its work of

Cultivating or tilling.—In the spring, when the ground is warm enough to cause the plants to show the first symptoms of life by pushing, I put a quantity of the best barn-yard manure in the trench or ditch, and on that placed the loose earth left lying at the side during the winter. In this ground the plants were placed. If in two rows, eighteen inches apart; if in one row, nine inches apart. The latter, I am inclined to think from experience, the best for every purpose.

The plants thus set out were kept carefully weeded and cultivated all summer. They sprouted slowly and very irregularly. But these were plants purchased. Those I grew were much quicker and more uniform. By the end of July nearly every plant was growing. In one instance, by count, I found but two out of two hundred and eighty failed.

Subsequent treatment.—In the autumn the plants treated as above stated had grown in single stems, from three to six feet high, depending on the earlier or later start. The stems were quite thick.

These I laid down without cutting, nicking or breaking, by simply bending them nearly flat to the ground, and weaving them as one would osiers in wicker work. There is little elasticity, but great toughness in the wood, and the thorns secure them in place when bent and woven, without tying or any other sort of fastening.

The next year the hedge started with an average height of six inches from the ground of the stems, thus lying laterally along the ground. The leaf buds sent up shoots similar to those of the first year, but thicker and higher; many grew eight feet. The ground was cultivated with a hoe and weeded. In the autumn these stems

were again laid down, without nicking, breaking or cutting. This made a hedge of lateral stems about eighteen inches from the ground.

The next summer the shoots grew, the upright ones much more vigorously than the laterals. When the upright shoots reached three feet or more, I cut the tops with a sickle at the height I determined.

This was repeated at intervals, whenever there were a few inches of ground above the line determined, from time to time, as the height of the hedge. This permitted the shorter and weaker stems to grow without checking till they reached the proper line.

The result was, that in the third summer from setting out the plants there was a good hedge, sufficient to turn ordinary cattle, as it seemed. Certainly in all subsequent years it was impervious to man or beast. And it had a foundation as firm as a fence.

Cutting.—If this is done when the plants are young, they are so succulent that an amateur can readily trim two hundred feet in an hour, and feel no fatigue.

Laying down.—I have this year adopted a plan that I deem a great improvement, and I have done it with stems varying from a quarter to an inch diameter, thus: I cut off with nippers a number of stems to the height of two feet, so that a stem left at each end of the cutting when laid down and woven into the upright cut stems would cross each other, and give at least two lines of lateral stems passing in and out of the stumps of the cut stems, thus giving a living fence of about two feet high. I expect to trim the growth from these next summer to about three feet high, leaving the laterals to grow with little or no trimming to form the hedge into the pyramidal form, which is essential, as lower branches will not flourish if upper branches overhang them.

If any one can show more perfect hedges that have thus been produced, I have yet to see or hear of them.

EDITORIAL NOTES.

MEMORIAL TREES.—The Dukes of Connaught and of Edinburgh, recently planted some oaks as memorials of visits on important occasions.

RED COLCHICAN MAPLE.—This tree is remarkable for its beautiful pink second growth of leaves. When the tree gets towards maturity it makes but one growth in a season, and loses the pink

peculiarity. But in autumn it is one of the most lovely of yellows. The Norway maple is pretty in its lemon yellow, but this maple is bright golden. Its proper name is *Acer lætum*.

RHODODENDRONS.—These are not so particular about the kind of soil as its texture. A stony soil—one that is porous—is good. They will not do in clay or heavy land.

CLIMBING HYBRID PERPETUALS.—Mr. D. F. Fish, excellent authority, believes that some of the Hybrid Perpetuals will do to train as climbers, or pillar roses, and gives the *Garden* the following list:

"Neither must it be inferred from my silence about Hybrid Perpetuals that these are not suitable for the covering of dwelling-houses. On the contrary, they form the best material for this purpose. Of late years, too, climbing varieties of some of the finest Perpetuals have been produced, and we are now provided with climbing Bessie Johnson, Charles Lefebvre, Countess of Oxford, Edouard Morren, Geant des Batailles, Jules Margottin, Madame Eugene Verdier, Victor Verdier, &c. These alone—assuming that they are equal in quality to their non-climbing namesakes, which, however, several of them are not—would suffice to lighten up and clothe the barest mansion. The majority of the Hybrid Perpetuals are strong enough to climb or grow up to the height of the walls of ordinary dwelling-houses, provided they have good borders to start in and are well fed afterwards. The following may be specified as among those best adapted for the covering of dwelling houses, stables, out-buildings, &c., viz., Alfred Colomb, Antoine Ducher, Abel Grand, Beauty of Waltham, Baronne Prevost, Boule de Neige, Centifolia rosea, Charles Lefebvre, Comtesse de Chabillant, Docteur Andre, Duke of Wellington, Duke of Edinburgh, Duchess of Norfolk, Edouard Morren, Elie Morel, Etienne Levet, Ferdinand de Lesseps, Francois Michelin, General Jacqueminot, Glory of Waltham, Jules Margottin, La France, Madame Eugene Verdier, Madame Ferdinand Jamin, Madame Noman, Madame Victor Verdier, Madame Vidot, Marechal Vaillant, Marie Baumann, Marie Rady, Monsieur Noman, Mrs Laxton, Paul Neron, Senateur Vaisse, Sir Garnet Wolseley, Sultan of Zanzibar, Victor Verdier, Xavier Olibo, &c. From this list, which might readily be doubled or trebled, it is obvious that if our dwelling-houses are not covered with roses it is at least for no lack of suitable material."

QUERIES.

SCHINUS MOLLE.—This is what our correspondent refers to: "I enclose this branch of what my son says is called the Pepper tree in California, having the odor of pepper. He speaks of it as the handsomest tree he saw there. I grew it from seed. What is it, a Locust? Please name it. One planted out that spring grew eight or ten feet. I suppose it will not prove hardy here."

ANTS.—Alpha informs us that ants rapidly made a midnight move after a lawn was sprinkled by an artificial fertilizer, and a rose bush also infested, was cleared of the intruders similarly treated. We have no doubt but that many of these nauseous smelling mixtures would be effective, as the ant has nice smelling powers.

PROPAGATING THE MAIDEN HAIR TREE.—R. T. McN., Jackson, Mich., asks: "What is the best way to propagate *Salisburia adiantifolia*? Have tried cuttings under glass with no success."

[You will succeed best by layering. Choose shoots about one year old, notching the part buried in the earth to facilitate rooting.—Ed. G. M.]

VARIETIES OF NORWAY SPRUCE.—A. T. McN., Jackson, Mich., asks: "Will you please answer through the medium of the *GARDENER'S MONTHLY* the following questions:

"I have noticed that there is a considerable difference in the appearance of different specimens of the Norway Spruce, in respect to habit of growth. Some have a distinctly pendulous character to the small branches, giving them a far richer and more elegant appearance, and reminding one of heavy folds of crape, thus making them very desirable and ornamental planting for cemeteries. Close inspection reveals no other difference between these and the Norway Spruce of upright and cheerful habit, more common here. Are the pendulous specimens a distinct variety, or merely a sport, or neither? My ignorance may appear ridiculous to those familiar with this difference, but one way to learn is to ask."

[It is a law in all trees that there are no two exactly alike, though some species show a wider range of variation than others. The Norway Spruce especially varies very much. There is no way to select with absolute certainty the pendu-

lous forms from the other, but at the pushing out of the leaves in spring, we may come pretty near accuracy by selecting those which push out a little later than others. When one has a variety they wish to perpetuate, it can be done by layering.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

To grow flowers well, good potting is essential; but few know in what good potting consists. The hole in the bottom of the pot is to let out the water; but few take care to keep the earth from choking up the hole. The bottom of the flower pot is often as flat as a pancake, and, when set on a flat board, there might as well be no hole in the bottom. A perfect pot is convex at the base. A piece of old pot, or some stones should go over the hole, and some moss or rooty material to keep the earth from getting in among the stones. Then the soil should have sand with it, as this keeps the whole mass porous, and the water is enabled to pass rapidly away. It is best to use soil for potting rather dry, and so dry that a lump will powder when crushed; then it can be pounded firmly in the pot, and the more it is pounded the more air spaces there will be, and this is what perfect potting desires. It wants air to the roots—moist air, to be sure but still air; and a soil in which water does not drain rapidly away, has no air.

If plants are not growing they do not need much light. Such plants can be put in the shadiest places, but if they grow they must have light; and if flower is desired, then the light ought to be sunlight.

Oranges and Lemons will require the coolest part of the house, and to receive no more water than will just keep them fresh.

The most interesting tribe of plants at this season of the year is, undoubtedly, the *Camellia*. The buds frequently drop off before flowering; this may spring from three causes—from the plants being kept too dry, or from the drainage being bad, whereby the soil becomes sodden, or from the house being kept too warm by insufficient ventilation. As the leaf-buds burst, the plants are benefited by occasional syringings;

and, indeed, an increased supply of water altogether, in order to accommodate the demands of the young growth.

Cinerarias will soon be the chief attraction. The least frost kills them, yet they will not do well if kept in a high temperature. They love moisture, yet are very impatient of damp. No plant is more improved by the use of charcoal in potting than this.

Hyacinths that have been out of doors, or in any reserve place for protection, may be brought in a few weeks before wanted; they should not have much heat, light or moisture for a few days, and then only gradually.

Carnations and Pinks are much admired when grown in pots and flowered there early. They do not flower well if too much warmth be given, but the usual temperature of the greenhouse will bring them forward a month before they can be had out of doors. Whenever the roots make their appearance through the bottoms of the pots, they should be shifted into a size larger. They require very little water, and love the light, and whatever manures are used to enrich the soil should be thoroughly rotten. The *Pansy*, on the other hand, delights in half-rotten, strawy manure and turfy loam. If a quantity of seedlings have been raised in the fall, they will require potting this month. They do not flower well here when the weather becomes warm; but when grown in pots, and forwarded slightly by the aid of a cool frame, they do very well.

Cacti and succulent plants generally, will scarcely require water at all, unless in very dry situations, and then receive but a slight sprinkling with a syringe. The rule "When you water a plant at all, let it soak right through," does not, by any means, hold good with these plants, if there be not some other good exception.

A good supply of young *Fuchsias* should be coming on now. Re-pot as their roots fill each

pot; let them not want for moisture or light; do not pinch off their tops, but let them grow rapidly. The temperature in which they are grown should not exceed 55°. A turfy loam, moderately enriched with well-decayed manure, and well drained with charcoal, suits them admirably.

COMMUNICATIONS.

CUT FLOWER TRADE.—HYBRIDS.

BY W. E. MEEHAN PHILA., PA.

There has been much difficulty experienced by the growers in raising Hybrid roses for the cut flower market; and thus far with the single exception of Gen. Jacqueminot, all efforts have been almost a total failure.

Paul Neron is grown to a limited extent, and could it be put on the market at a reasonable figure would probably be one of the favorites, as its large size, noble form, and peculiar soft rosy red color make it very attractive. A rose, however, that in February can hardly be sold under two dollars each, retail, will scarcely find more than a limited number of purchasers.

There are other hybrids that can be forced with more or less ease, but there is always something defective in the flower, either that it does not form a good bud, or that its color is wrong or undecided, or some such cause.

Gen. Jacqueminot, however, to those that have been lucky in raising it, has been a little "mine," so to speak, and has probably been the best paying of all the fancy roses.

Professionally speaking, "Jack" rose is not in the market much before February, although a few may be had as early as December. These are aptly called "bastards," being poor, miserable, scrubby little things. Poor as they are, however, they are worth about forty dollars per hundred then.

Although this price seems enormous for such a poor article, one grower who had one house especially for December forcing, assured me that the season before he had lost twenty cents on every bud he sold, and he having a superior stock received fifty dollars a hundred for them. He continued forcing early because it gave him a lead in the market, and enabled him to command a higher price for his other goods.

A single crop of Jacks lasts about two weeks, and a house will yield a couple of crops, one in February and a second in April.

The fluctuation in the price of Jacks is start-

ling and terrifying to the oldest hand. I have known a rise or a fall of twenty dollars a hundred in a single day. Last season the average scale of prices in Philadelphia was about as follows to May 1st:—

Feb.	1st half, per hundred,	\$60
	2nd " "	45
March.	1st week, "	35
	2nd " "	30
	3d " "	20
	4th " "	35
April.	1st " "	15
	2nd " "	12
	3d " "	20
	4th " "	25

During this time, of course, there were many and violent changes—the highest figure that was reached in that time was sixty-five dollars, and the lowest six dollars per hundred.

The average retail price was fifty cents a bud, although they have sold as high as a dollar, each.

A "Jack" bouquet is worth from fifteen to thirty dollars. It is used alone, or in combination with Niel, Cook, or Lily of the Valley.

A bouquet, the centre formed of Niels, or one of one side Niels and one side Jacks, were the favorites last winter. A Jack bouquet is generally trimmed with ribbon to match the color of the bud.

Over a thousand Jacks were used in Philadelphia recently on one occasion by one firm. The buds having a good stiff figure in the market at the time.

Jacqueminot is a second of the three roses, the price of which is always kept up, for the same reason that M. Niel is held stiff by the retail florist.

Jacqueminot was first introduced to the public in Boston, where it at once created a furore that has not yet subsided.

BRYOPHYLLUM CALYCINUM.

BY C. E. PARNELL, QUEENS, L. I.

In reply to Mrs. R. P., who inquires in the August MONTHLY, page 237, for information respecting *Bryophyllum calycinum*, I would say that it belongs to the Natural Order Crassulaceæ, and that it is a native of the East Indies from which country it was introduced in 1800.

It is a succulent, evergreen plant growing about three feet high, with thick, fleshy, opposite leaves, the leaves being composed of three to five foliate

oval crenate leaflets. The flowers are produced from April to July in loose terminal panicles, the single flowers being long and pendulous, with an inflated calyx and a tubular purple corolla. It is a plant of easy cultivation, requiring good drainage, a rich loamy soil and but little water. Propagation is effected by the leaves which produce buds on their margins, which produce new plants if placed in a damp situation. During wet summer weather they occasionally do this in the living plant, this peculiarity renders it rather an interesting plant.

If Mrs. R. P. possesses a copy of Peter Henderson's plant catalogue for 1877, she will find on page 26 an excellent wood-cut of the *Bryophyllum* from which she can form a much better idea of its manner of flowering than I could possibly give her by words.

Why Mrs. R. P.'s plant does not flower I cannot say, but I would advise her to allow it to become pot bound, and to keep it dry during the winter months. Commence to water freely in April, giving it an occasional watering of liquid manure water. After it has ceased flowering, shift the plant into a larger pot, and gradually withhold all water after the first of October. Thus treated, I do not think it is a difficult plant to flower, and I am inclined to the opinion that Mrs. R. P. gives her plant too much pot room for its roots. The *Bryophyllum* is cultivated, however, more for the peculiarity of its leaves rooting at their edges than the beauty of its flowers.

WATERING GREENHOUSES WITH A HOSE.

BY EDWARD L. KOETHEN, PITTSBURG, PA.

Many very good gardeners have a prejudice against using a hose in watering their greenhouses. It is hard to tell where such a prejudice has originated, but it is undoubtedly nothing more or less than this, for much time and labor can be saved by its judicious use, without injury to the plants. Indeed, plants which require much water are apt to be neglected by careless workmen, when they must be supplied by can watering, but where the hose is used there is less liability to neglect. It is true care must be taken in its application; but where is there an operation in this line which does not require care? It might be answered that careless workmen cannot be trusted with a hose, that they will water every thing indiscriminately if they have so easy a manner of getting the water, and that then you have gained nothing over the can

method in this direction, and on the contrary that it takes more care. Admit all this, but do you not gain time and labor? and will it not pay in the end to hire good help, and watch that the watering is properly done? In the winter particularly, the hose should be used with discretion, especially in the stove-house, where indeed it might be well to banish it entirely until the water becomes warm enough to be used with safety, and even then it is well to use a can with many finer plants which require special attention. The careful workman who waters with a hose, it must be remembered, need not throw the water around in all directions, regardless of the wants of many of the plants in the house; but he will so regulate the stream that he can water each plant separately, and only wet the foliage of those which require syringing, and with a little practice it can be done with as much precision by this means as by the old way, except in some few cases, and then a can must be used as above indicated. With general stock, in the cooler houses, the hose can and will, I am sure, eventually be universally used to good advantage. I say it can, because I have seen it used for a number of years with good results. Where city waterworks are not at command a good force pump is indispensable, and no garden should be without one. There are some large commercial establishments in the country where the hose is never used, and where at least one-third, and in many cases much more of the work of watering, could be saved by its use. I have seen two men do all the watering in an establishment, where the hose and hydrant were taken advantage of, in the same time that it took five men with much harder work to water all the plants under less glass, where the watering was done with cans, and then their work was not done nearly as well, and had to be revised before the time came again for regular watering.

Now if some of the good old fashioned gardeners who are opposed to all innovations, would give this a thorough trial, they would be astonished at the result, and I am sure that they would never want to do without the hose afterwards.

ONE USE OF SLATE IN GREENHOUSE BUILDING.

BY GEORGE BALDERSTON, COLORA, MD.

I have received many valuable ideas from the pages of the GARDENER'S MONTHLY during the past few years, and by way of return give an idea

that I have put in practice and found to work well in my own case, but have not noticed elsewhere, though it may not be new to others. It is to use ordinary roofing slate for the bottom of greenhouse flues. They can be had anywhere, nine or ten inches wide by eighteen or twenty inches in length, and are cheaper and better than brick to use in long horizontal flues, occupying less space; and the slate I use only requires to be supported twenty inches apart instead of the eight inches that brick require. As these flues are always better on, or partly buried in the earth, for a short distance from the furnace, to modify the excess of heat by lessening the radiating surface, no slates are needed so close to a furnace that there is any danger of their cracking by the heat when they are covered with a coating of mortar in which the side bricks are imbedded. From the nature of things, the top of a flue is always hotter than the bottom, and I have never thought it safe to try to use them on top, where they are more liable to breakage from other causes; but would have no hesitation in covering the flue also at a distance of forty to fifty feet from the furnace. They will absorb and radiate nicely, but we know that a blaze or extreme heat will cause them to fly to pieces. The slates I use each have a surface equal to five, and a part of them of six bricks. These are supported on stone at their junctures, and leave a clear space under the flue for free circulation of air, and this is an additional gain.

In choosing slate for this use, I do not pick out very thin ones, but with a little care in first laying the flue there is no weight to break them, the brick being nearly self-supporting when mortar is dry. With this foundation it is easy to build these horizontal chimneys five inches in inside diameter, and thus insure a good draft.

There are special tiles made for this use, but they have no advantage that I know of over slate, and are not to be had every where.

COOL ORCHIDS.—Stanhopeas.

BY W.

Although strictly speaking all the species of this curious genus are not cool orchids, they all are as well adapted to cultivation in any ordinary greenhouse, as many of those which are found at greater altitudes. This the writer has thoroughly tested for the past two years, and can therefore speak from experience.

With exception of the large family of Epidendrums, the Stanhopeas are of the easiest culture,

and can be grown as successfully by the amateur as a geranium or fuchsia. Notwithstanding they are chiefly natives of the hottest parts of Mexico and South America, they seem to have a greater capacity of accommodating themselves to a moderate degree of heat, I might almost say an absence of it, than any members of this wonderful family. One species is included among the orchids successfully grown out of doors in Bohemia during June, July and August, 1852, and subsequent years, and I am convinced that partially shaded, they will grow equally well from May to September in the latitudes of Baltimore and further South in the open air, as they have done under glass without fire-heat. Like all orchids, except those coming from equatorial regions, many of which will grow continuously, they require a season of rest and growth, and blossom during the summer and autumn months only. Simultaneously with the flower stems, the young growth appears and pushes forward vigorously, many of the leaves and pseudo bulbs attaining the height of two feet. During this season they need a liberal supply of water, and if the leaves are occasionally syringed it will prevent the attacks of the red spider and thrips. After their growth has been completed, water should be gradually withheld, and only sparingly given until the time for their flower spikes to be developed in the spring. For those who are commencing the culture of orchids, there are none better adapted to their wants, as they are easily cared for in winter, it being only necessary to keep them in a light and airy position where the thermometer does not fall below 40° at night. As a proof of the ease of their culture, I will say that a plant of *S. Martiana* in the summer of 1879, developed a spike of seven flowers while suspended from the roof of a greenhouse by a string, without basket, moss or any attention, save an occasional syringing, and also made new growth, and a plant of *S. Wardii*, imported in July, although without foliage, is now sending down a strong flower scape. They should be invariably grown in baskets, open at the bottom and the sides, made of small cedar or locust sticks, six to eight inches in length and four deep; the bottom of copper wire or sticks half an inch apart, to permit the flower spikes to find their way through with ease, as they always take a downward direction, and are often blighted if they meet with any obstruction in their course; and these baskets must be suspended from the roof near the light, protected

slightly from the scorching rays of the sun. They should be grown in no other material than true sphagnum moss.

This was one of the two or three orchids observed by Hernandez, the old Spanish naturalist, a century and a half before orchids became popular, who, on page 266 of his work, gives a rude wood cut of the plant, under the name of the Lynx flower. The name is not inaptly applied, yet to the majority of observers its curiously grinning flowers remind one more of a flock of birds with spotted wings outspread, hovering over some object they are endeavoring to take up with their claws. This fancy is more striking in *S. oculata*, so named from the brown spots in the sides of the grotto, which have the appearance of eyes. They vary in size from two to eight inches across, and in numbers, upon a scape, from two to nine. I have had several with eight the past summer, and some species are said to produce many more. Some are without fragrance, but most emit a strong odor each species having its peculiar characteristic in this respect, occasionally unpleasant, but usually delightful—strong vanilla, delicate cinnamon or lemon scented—and in one species, *S. virginialis*, which is pure white, like orange blossoms. This is very rare. In color, all shades of yellow, orange, lemon, straw color and greenish-white abound, and the pure ivory white and waxy lip of several species gives them a beauty and softness seldom seen in the floral world. A large portion of the species have flowers spotted with chocolate, red, purple of various shades, crimson and rose, and as unlike in the method of their arrangement as possible to imagine. My own experience confirms the testimony of others, that each species is more or less varied by cross fertilization in their native habitats, scarcely two plants of the same species being spotted alike, although the form of the flower, the distinctive characteristic of the species is the same. The only drawback to their general cultivation and usefulness for decorative purposes is the fugitive character of their blossoms, lasting usually for three days only; but this is more than made up by the fact that each strong and healthy plant will give from one to three spikes of from three to eight flowers each summer, and a friend reports seven spikes from one basket.

Very little reliable information with regard to the several species is to be found in any of the many works on orchids and their culture. Williams names but ten, and many of these are

much alike; Bull but ten, the Fairfield orchids but two; and Burbidge does not even include these in his "Cool Orchids and How to Grow Them." Evidently the genus is as they say, much mixed, and the opportunity is still afforded for some enterprising botanist to classify and rearrange this splendid family of gorgeously colored flowers in some systematic order, and assign to their proper places the twenty-six species now known to exist, and the new ones continually being discovered in South America.

It may be desirable to add that the name given to this interesting genus was so conferred by Sir Wm. J. Hooker, in compliment to the Right Honorable Philip Henry, Earl Stanhope, about fifty years ago, President of the Medico-Botanical Society, of London; the Mexican name given by Hernandez is the euphonious "Coatzonte Coxochiti," and that the distinguishing characteristics are the downward direction taken by the flower-scapes and certain botanical differences in the structure of the flower, intensely interesting, but not necessary to mention here.

STRIPED PELARCONIUMS.

BY JAMES W. DOHERTY, NEWPORT, R. I.

I see that the lovers of fancy geraniums look for Mr. Cannell's New Life as original. It is nothing new for the gardeners of Newport to see a striped geranium. I have one for the past eight years, of my own raising; it sends up its large truss of flowers well over the foliage. Some of the petals are half pink and half scarlet; more of them striped. On the same plant there can be seen scarlet, pink and striped blooms at the same time. This geranium I have kept and did not make it public.

PLUMBAGO CAPENSIS AND JASMINUM GRANDIFLORUM.

BY W., VIRGINIA.

Few attempts at floriculture are more discouraging than that of growing plants in the winter in an ordinary sitting-room, hoping for a continuance of flowers the whole season; for if we except *Ageratum Mexicana*, *Browallia elata*, and one or two fuchsias and geraniums which do not appear to suffer from the dry atmosphere and coal gas, these attempts are generally miserable failures.

Each year one gets more and more discouraged, and notwithstanding the occasionally encourag-

ing words of some one who has been a little more unfortunate, is tempted to give up in disgust.

Of late I have preferred to grow some plants in the winter for summer flowering, or rather to let them live, and I feel amply repaid for the slight care they require. A plant called winter-blooming is often supposed to bloom continuously the whole year, but such is not usually the case. Most plants require a season of rest as well as growth, and if they have flowered freely in summer, it is too much to expect a continuance of their favors in winter also. If flowers are desired during the inclement season, the young buds must be nipped off in summer and a good growth of wood obtained before removing them indoors to grace the parlor or sitting-room; but it is often better to start young plants from cuttings rooted in sand, from July to September, for that purpose.

My intention was not to speak of plants in general, but of two favorites in particular, named above, and of the treatment they require. They are called winter-blooming in catalogues, and so they are, under favorable auspices, in a greenhouse or good conservatory; but with me those enemies to household plant culture, referred to above, have rendered my attempts unsuccessful. A few dwarfed blossoms can scarcely be called a reward for one's care and patience.

In the autumn these plants should be cut well back and the pots lifted without changing the soil; removed to a cool, light room, away from frost; occasionally watered sparingly, just enough to keep them from drying. If they commence to grow a little it will do no harm. When all danger of frost has passed in spring, shift into a size larger pot if necessary, shaking off all the old soil and give good drainage and a plentiful supply of rich loam. Plunge in the border and water freely. They will soon break abundantly, if they have not already done so, and in a few weeks be covered with a profusion of flowers.

Plumbago capensis is a perfect gem, with its one-sided clusters of fairy-like flowers of the most delicate shade of light blue imaginable, and such a profuse bloomer. It only lacks fragrance to make it unsurpassed. The flowers last in perfection but one day, but others open the next on the same spike or raceme, so that the same cluster is in bloom for several days. *P. Larpentei*, a hardy perennial species, flowers of a rich shade of blue. *P. alba* and *P. rosea* do

not compare with this, which is very distinct and unlike any of the others in leaf, flower and habit. *P. coccinea*, I have not seen.

Jasminum grandiflorum, or as sometimes called the Catalonian Jessamine, is not as hardy as *J. officinale*, so common in our gardens. It is sold as a winter blooming greenhouse plant of climbing habit. The leaf is larger, with nine leaflets instead of seven, and the flowers of more substance and larger also; pure white, tinged pink on reverse of petals, delightfully fragrant. The inflorescence is not as compact as in the hardy species, and is rather loose and branching, but it by far exceeds the latter in grace and beauty, and the delicate sprays, at the extremity of every young shoot, are perfection, with a skeleton geranium leaf for a *boutonniere*. It does not blossom quite as early as the *Plumbago capensis*, but continues longer in flower, and will often blossom well into winter if not cut back and removed to the house, with change not too sudden.

For several seasons I have treated these plants in this manner most successfully, and they afford me far more pleasure than a few dwarfed blossoms would as a return for the trouble to keep them free from red spider and dust in winter.

EDITORIAL NOTES.

IVY-LEAF PELARGONIUM GLOIRE D'ORLEANS.—This very fine and distinct variety is one of the floral treasures Mr. Barron secured for this season at Chiswick. For its pleasing and distinct color, of a bright, pale, rosy-magenta hue, much deeper than anything that has yet appeared; for the fulness of its flowers, which are medium-sized but very double; and for the marked freedom of habit which characterizes this fine addition to the Ivy-leaf Pelargonium, a freedom that shows itself in connection with a close and compact habit—for these fine qualities Gloire d'Orleans excels all the double forms of the Ivy-leaf.—*Gardener's Chronicle*.

LAPAGERIA.—This is a very popular cut flower plant in England,—some having houses exclusively devoted to it as we have of *Myrsiphyllum*, or "Smilax," as it is popularly called. There are two varieties, the white and the rose-colored.

CYPRIPEDIUM INSIGNE.—This pretty lady slipper grows very well in a cool greenhouse, and as it is a winter flower, is getting popular for cut flowers.

TABLE DECORATIONS.—A correspondent says: Nothing is more useful with him than the leaves of *Mahonia aquifolia*, as a base for other flowers.

DOUBLE CINERARIAS.—The single Cineraria is one of the most beautiful ornaments for rooms or greenhouses in early spring. Our foreign exchanges continue to speak of improvements being made in the double ones.

NEW PLANTS.

DOUBLE BOUVARDIA—"A. Neuner."—We recently noted that a double white Bouvardia had

been introduced; and we have received a living head of flowers from Nanz & Neuner, of Louisville, Kentucky. By the courtesy of the firm, we are now enabled to give a representation of the flower. We have not had anything at hand for a long time so beautiful; and we fancy it will have a run of popularity unexampled in floriculture.

QUERIES.

QUERIES.—"C" asks: "Will you or some of your readers please be so good as to give me a description of *Anthurium magnificum*? Of what



DOUBLE BOUVARDIA "A. NEUNER."

country is it a native? and by whom introduced, and when? An article giving some information concerning this plant would no doubt prove of value to some of your readers."

SOLANUM AZUREUM.—"E" asks: "Will some of the readers of the MONTHLY please give me their experience with *Solanum azureum*? I see that it

is by some most highly recommended, but as so many of the *Solanums* are utterly worthless for general cultivation, I should like to have the experience of some of the readers of the MONTHLY."

CROTON SPIRALE.—"P" asks: "Is not *Croton spirale* a sport from *C. interruptum*?"

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

THE BRIGHTON GRAPE.

BY A. C. L., MADISON, IND.

You remember last season after testing quite a number of grapes, you pronounced the Brighton the best of all. Every one, who, relying on your taste, planted largely of the Brighton last spring, in my humble estimation, will have reason to be grateful to you for an opinion, that lacked nothing of decision. To-day after testing the "Brighton" with the "Lady," "Martha," "Allen White," "Hybrid" and others, I would give the premium to the "Brighton." In the estimation of some it may be too sweet, but its flavor would compensate for that.

The Muscat Hamburg of the graper, has three distinct flavors, but that of the Brighton, is equal to all of them combined. Its flavor reminds me of the old-fashioned peach preserves that my grandmother made some forty-five years ago.

Many thanks, sir, for your opinion of the Brighton grape, and for your free expression. You have done the lover of good grapes a favor, the magnitude of which, time alone can demonstrate.

[The opinion given was after testing a large number on one grower's ground near Geneva, N. Y. It would not be fair to assume that it would behave so well everywhere, and it is, therefore, well to know that it bears the same character at Madison.—Ed. G. M.]

SWAMP MUCK.

BY GEN. WM. H. NOBLE, BRIDGEPORT, CONN.

A late MONTHLY says, in effect, that getting the richness of swamp muck into crop food costs a good deal more than it comes to. A loss is claimed of \$5,000 per acre on a three foot depth of mould.

"Tis pity if 'tis true." Nature thus would seem to have wasted long years in storing their food beyond the reach of the pinched harvests. She is not apt thus to hide her riches from man's patient search. Has she set a puzzle which no deft wit has yet worked out? Is there no way

yet found to delve into this richness, and cheaply turn its store to swell the puny crop? Or must they, like that hungry fellow in the myth of yore, starve in sight of piles of choice food? Nature does not dump gold into our laps, nor does it float in running brooks. Food is not showered like manna in our paths. But to all her store helps are found to bright and faithful search.

Let's talk this up a little, brother. I have studied some over this hope of the harvests. In a kindred journal I have had a good deal to say about the promise of the muck-bed to worn-out soils.

I have not put forth in the MONTHLY this resource of the garden, because it seemed rather the property of the farm. But the cost and loss lately set down by you, and other disheartening search after these massive lodes and placers of richness, prompt me to offer hope of better handling, or cheaper assay, to mine or pan out its wealth.

But really the first thing in order should be, for him who dumped these dollars into a muck bed, to show up the methods and cyphering which foot so big a loss. Men of skill and science report lots of better luck in field and laboratory. I have abiding faith that their story of more hopeful tests will not cheat the longings of the hungry. Either that \$5,000 loss per acre came of blundering trials or the sanguine tales and figures of big profit, easily had from the muck-bed, are a delusion and a snare. All agree that the value is there. I say if it cannot be put into crops without such cost, the brains of our day have got but little ahead of the cave-dwellers. Let's see how this is.

WHAT IS SWAMP MUCK?

It is as needful and wise in debate to define your terms as to catch the hare before you snuff the savory stew. Half the world's disputes are over words, not things; over the "outward and visible" shadow, instead of the "inward and spiritual" substance.

I mean by swamp muck, that black store of vegetable decay found in low down and water logged places, bog swamps, peat beds and hollows that catch and hold the upland waste. Of

these there are two great classes—fresh and salt muck. Fresh muck is of three kinds.

1st. That made by the drift and decay borne along by sluggish runs into low down places. This store comes from the woods and fields, and from local growth of weeds and grasses.

2d. That found in basins among the hills, holding the wash from wood and tilled soils.

3d. The great peat beds, from a few feet to fathoms deep; the growth through centuries of Sphagnous moss and vegetable waste piled in tiny layers of decay.

The second class, the salt muck, comes of old ocean's drift and scum through countless ages of animal and vegetable growth and death. Its richness is packed and stored in great salt marshes of unfathomed mould, in deep inlets filled by the rush of big tides and storms sweeping inward, all that floats on its ceaseless surge and mysterious currents.

All these tribes cover vast areas. They yield but little, as they lie, to the stock of human wealth. But I believe their vast treasures stand with open doors to the wit, skill and lift of the tiller of the soil. Along the whole sweep of our sea-girt shore, north and south, wherever the big salty tides sweep into the upland rifts, and away inland, beyond the ocean's breath, beside tiny streams, in swamps without end or in vast dismal peat beds, are garnered relics and ashes of decayed vegetation awaiting a resurrection into crops.

Yet from the MONTHLY and other like guides and pioneers in land culture, come doubt and distrust, to dampen this hope of the harvest. Why is this and how is this? Verily, I think they sin against the light and against signal tests and trials. Prof. Dana (not he of the rocks but the chemist), long since in his "Muck Manual" figured up the hidden riches of the muck bed. He states its wealth, assayed value, as equivalent to the best stable manure. Prof. Johnson, of Salle, has followed up the same subject with new figures and field tests. In my next I will give some of their analyses and trials.

THE CATAWBA GRAPE.

BY A. C. L., MADISON, INDIANA.

The impression has gone abroad that the Catawba grape, like the old favorite, White Doyenne pear, "has played out" in the West, unless grown in some favorite spot like unto "Kelly's Island." But it is a mistake. As fine

Catawba grapes can be grown to-day in any locality where the Concord will flourish. The conditions are simply these—the fruit to be cultivated at least *ten feet from the ground*. I have one vine that is twenty years old that never fails to give me a full crop of delicious fruit every season, entirely free from rot. In another part of the premises is a vine that has been cultivated for the past fifteen years, but has never yet produced a perfect crop of grapes. This season the vine was raised up ten feet from the ground. The result has been as fine a lot of grapes as any one could wish—no rot or mildew. The Rev. Dr. Little, who is one of the oldest and most intelligent horticulturists in this State, never allows his vines to fruit near the earth. Some of his vines extend over the top of his house. He never has a failure. Is it not possible we cultivate all of our grapes too near the earth? I have often observed the lower tier of vines on a trellis almost entirely fail, while the tier above was almost perfect. It is to be hoped that others may be induced to try the tall cultivation and report the result.

EDITORIAL NOTES.

THE COE GRAPE.—This is well spoken of by Prof. Budd, of Iowa. It ripens there ten days before the Concord.

YEAST FUNGUS FOR DESTROYING INSECTS.—Considerable attention has of late been given to the idea of destroying fungus by the use of yeast. The fungus eaten or falling on the insect is believed to be destructive. Prof. Prentiss gives the result of some experiments on aphides in the August number of the *American Naturalist*, which seem to indicate that it has no effect on them.

THE JAPAN PERSIMMON.—This has been found to fruit deliciously in Algeria and will be largely planted. Algeria and California have similar climates.

CALIFORNIA PEARS.—A box from Mr. B. F. Fox, containing some of his seedlings, not only confirms their excellence but shows how easy it is to ship them east when proper packing is understood, not one having the slightest bruise. It was said by them of old time that California pears were pretty but not good. One of these, which proved to be the B. S. Fox, was equal in flavor to any thing we have ever tasted. Deli-

cious, in the fullest sense of the word, is just what these were.

THE PHYLLOXERA IN EUROPE.—We know very well that the Phylloxera is a native of the new world, and has been introduced into the old; but the French have the question yet under active discussion. The editor of *La Vigne Française*, shows how impossible it is to be of European origin, and also that the historic vine disease of the twelfth century, called by Strabo *phleir*, though a root disease, must have followed from other causes. The same paper notices that the Phylloxera has made its appearance at length in the vineyards of Switzerland.

FAY'S PROLIFIC CURRANT.—The *Rural New Yorker* figures this variety. By the way in which the artist has arranged the base of one raceme so as to line with the apex of another, the racemes appear to be from six to twelve inches long; and it is only after a second thought has suggested the impossibility of such dimensions that we conclude the appearance is but an artistic delusion. So far as we can judge from the picture the berries are as large as the cherry, with probably the length of the Versailles. From what is said of it we judge it to be a desirable variety.

QUERIES.

THE ORIGINAL SECKEL PEAR TREE.—Mr. C. B. Rogers, Philadelphia, writes: "I do not believe you have the history of 'the oldest Seckel Pear Tree.' I know of one that is old enough to be grandfather to yours; it is standing on a farm on the Rancocas, about two miles from Mount Holly, on ground formerly an Indian camp. One hundred years ago it was very much decayed, and the top broken off about twelve or fourteen feet high, and I have good authority that it remained in that state for one hundred years. I will wager a ginger-cake that I can show the father of the Seckel pear."

[All right, good friend, hurry up the proofs. There is another competitor with you near Hatboro, Montgomery Co., Penn., as we are informed. There is one point especially you will do well to investigate, namely, The tree we have illustrated grows on the property of the Seckel family, purchased by Girard many years ago. You will see by Watson's *Annals of Philadelphia*, that this fruit has been known as the Seckel by thousands

on thousands of Philadelphians for nearly a century. How came the Jersey people to let the Seckel family have the honor of the name all these many years? Did the Seckels own the Indian camp also?

N. B.—We prefer those broad thin ginger-cakes that have spice like the Seckel Pear.—Ed. G. M.]

BRETT PEACH.—Mr. Jos. H. Ricketts, Newburgh, N. Y., writes: "In your last issue of the *GARDENER'S MONTHLY* you name in the list of Southern Peaches, Mrs. Brett as one of them. It is a mistake, it did originate in Newburgh, N. Y., and was introduced by the undersigned."

GROWING PINE APPLES.—E. O. N., Tracy City, Tenn., writes: "A short notice of large Pine Apples in October number of the *GARDENER'S MONTHLY* makes me bold to inquire about pineries in this country. Would you not yourself, or get some one else well acquainted with the growing of pine apples, write us a full description of the *modus operandi* in the *GARDENER'S MONTHLY*. I have in vain endeavored to get any information on the subject. Here, where I live, fuel could be had for the hauling, and I think a market for the fruit could be made without trouble, since it bears shipping well. Is there any good book or publication on this subject?"

[McMahon's *American Gardener's Calendar*, John Jay Smith's edition, gives full directions for the artificial culture of pine apples. We do not see it in Marot's list of books, but he could doubtless procure it.

We have no doubt, with the new light gained since McMahon wrote, pine culture could be made much easier than it was in his day. We know of one who merely planted tops in the open ground, which rooted and grew finely, were transplanted to a common greenhouse, and bore excellent fruit the next season, though not near the size the first-class gardeners do. Still it is a beginning for those who want to learn, as perfection comes only with experience.—Ed. G. M.]

ANTIQUITY OF THE CURCULIO.—There be some who believe that the old folks were not plagued nearly as much with insects as we are; especially do they talk this way when the Curculio is in question. But Peter Kalm, the Swedish naturalist, who traveled in America in 1749, says he found widely prevalent "a worm, which causes the plums to drop before they are half ripe." Evidently the old folks were plagued by the Curculio as we are.

NATURAL HISTORY AND SCIENCE.

CUMMUNICATIONS.

CALADIUM ESCULENTUM.

BY O. J. POPPEY, POUGHKEEPSIE, N. Y.

In the October number a correspondent from Texas writes that he was unable to find this plant growing wild on the Brazos River, &c.; thus somewhat refuting the fact of its being naturalized in that State. I think it may be of some interest to the many readers of the *GARDENER'S MONTHLY* to be informed that this species is quite frequently found in that State on the San Antonio River, in the vicinity of San Antonio City, where I was a resident for sixteen years. In this locality, the *Caladium esculentum* is commonly called the "Sandwich Potato," but eaten only by some out of mere curiosity, and who declare them to be excellent for culinary use; according to an article in the January number, it appears to be a plant that combines both beauty and usefulness, something not often met with among those plants used so extensively for ornamental planting. I never saw it cultivated for any purpose in the section of the State in question, except the few that were planted in our garden, along a ditch, for ornament. These, as well as the wild-growing ones, never attain the size and magnificence of foliage they do here,—and that almost anywhere where planted; while in that part of Texas they must be planted close to a stream, so that a portion of the roots may be in constant contact with the water. In this position they are found along the San Antonio River, at least in the neighborhood of its source. I have traveled other parts of this river days in succession, and did not find a single specimen, but this cannot serve as a proof that they are not abundant elsewhere; for I can mention the same fact about the *Ageratum Mexicanum*, of which I am positive it is a true native of that State, but I never met with it so frequently as I did the *Caladium esculentum*. I made the same observation as the writer of the article mentioned above, that the *Caladium* does not produce ripe seed. The flower is white, of the same form, but less than half the size of the *Calla Ethiopica*, which it resembles in every other respect; but its stem does not reach above the foliage, so the flower is

secreted among the leaves. It is possible that the *Caladium* is a native of Texas; for about thirty years ago, when my father first settled at San Antonio, he found it there growing wild, and nowhere cultivated.

[There are many circumstances which make it very nearly certain that the *Caladium* is only an introduced plant.—Ed. G. M.]

EDITORIAL NOTES.

GUTTA-PERCHA.—This is the product of *Isonandra Gutta*, a tree of Java. It was brought to notice in 1843.

FLORA OF CHINA AND JAPAN.—Among the dried plants brought from China and Japan by Mr. Veitch's collector, Mr. Maries, are no less than twenty-two new species of ferns. This shows how comparatively little we know of these countries. Among the ferns found was *Aspidium Thelypteroides*, which is also indigenous to the United States.

ABIES AND PICEA.—As our readers know, fir trees have been erroneously called *Picea*, and spruces, *Abies*; the error originating in England. Spruces have always been correctly called *Picea*, and the firs *Abies* on the Continent of Europe. Dr. Engelmann has, however, pointed out that botany would cease to be a science unless conformed to recognized rules of nomenclature, which is that a prior name must prevail. In America we have adopted the first course, and the best English authorities have also assented to its propriety; but the following answer to a correspondent in the *Gardener's Chronicle* shows that the error will not be buried without a struggle:

"**ABIES, OR PICEA: R.**—No doubt the change is inconvenient, but you can obviate it by speaking of 'Sivers' or 'Spruces.' Again, in most cases every one would know what was meant if you simply used the specific name, such as *nobilis*, *ajanensis*, *Nordmanniana*, &c. We do not see why Englishmen should be isolated from the rest of the world to the general confusion; still less do we subscribe to the notion that it is their duty to perpetuate an error which other people have corrected."

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 19.

BY JACQUES.

Pronunciation of Terms.—An amusing example of the need of accuracy in naming plants occurred the other day, when a gentleman new to his collection of greenhouse treasures discoursed too much on his elegant collection of "Camillas;" a bookish listener asked if he had many Evelinas. To this the new man replied "he believed he had many fine specimens." These titles designate the two clever novels that were the delight of our grandmothers, and perhaps to some of us, our great-grandmothers, and they are still read and readable.

The Petroleum business has grown from \$27,839 in 1839 to 485,785,706 gallons in 1879-80, valued at \$37,109.58. In 1866 the value was 48 cents a gallon, and in 1877, 20 cents, and in 1879-80 a little over 8 cents. It is curious that this treasure was so long unknown.

Northwestern Cedar and Tamarack wood cutting is now a great industry in Michigan.

Gems and Greengrocery.—The *Natal Mercury*, speaking of the South African Diamond Fields, says that next to diamonds, potatoes seem to be the dearest thing, £6 10s. having been given for a bag of them. At this rate, however, potatoes are still considerably cheaper than carats.—*Punch.*

Plant doctors, according to the *Scientific American*, may become a necessity; the editor advocates such a profession, and thinks we already have made a beginning when we bore the bodies of trees with gimlets and insert sulphur, and so on. Who will become the first D. P. plant doctor?

EDITORIAL NOTES.

ROBERT BUIST.—(See Frontispiece.)—On July 13, 1880, died at Rosedale, Philadelphia, Robert Buist, aged seventy-five years. Horticulture does not yet know the full value of the friend it has lost. When John Bartram was wandering through the wild forests of the "Colonies," risk-

ing his life among wild beasts and savages, and exposed to innumerable privations and sufferings, all for the love of flowers, he received no sympathy from any neighborly friend. He wrote rather complainingly to his friend Catcott, that he knew not of a solitary one who would walk a mile with him. Now, as we look back on the proud position which he occupies, as the great patriarch of American Botany, there are hundreds who feel that they would gladly have accompanied him and have felt proud of the honor. Just so will future horticultural generations feel towards Robert Buist. The present know a great deal of what he has done for them, but the full value of all will grow brighter as time rolls along.

Robert Buist was born at Cupar Fyfe, near Edinburgh, Scotland, on the 14th of November, 1805, and when quite young went to learn the business of a gardener under the late James McNab, curator of the Edinburgh Botanic Gardens, where he imbibed that genuine love of flowers, which was a marked characteristic of his all through life. To complete his knowledge in all other branches of gardening, he went through a course at Elvaston Castle, the seat of the Earl of Harrington, one of the most famous gardening establishments in England. In August, 1828, he arrived in America, and obtained employment in the nursery of D. Landreth, which at that time was one of the best known in America. The Camellia houses were particularly famous, and C. Landrethii remains to this day a worthy monument of the early efforts of this firm to improve the Camellia. This nursery is now wholly built over by the great city of Philadelphia, the "Landreth Public School" being perhaps all that remains to indicate the spot where young Buist had his first lesson in American experience. That first lesson was to hoe weeds. Thirty years ago he took the writer of this to the exact spot where he first struck the hoe in the ground "with," said he, "the weeds half as high as myself, and the tears running down my cheeks as I thought of my native land, and wished that I was still there." He soon obtained a situation as gardener to Henry Pratt, who, at that time, had perhaps the most beautiful garden in the United States. This was at Lemon Hill, and was

a couple of miles or so out of Philadelphia, a city which has since extended twelve miles beyond—and "Pratt's Garden" is now a part of East Fairmount Park.

It was about the time of young Buist's arrival in Philadelphia that the tremendous strides in horticulture about Philadelphia began, in which he subsequently took a leading part. The nurseries then in existence in and near the city were Bartram's, conducted by Colonel Carr; McMahon's near Broad and Germantown Road; Landreth's, in Moyamensing; Maupay's, at Rising Sun, and Hibbert's, which was the first conspicuously florists' establishment. In the whole city of Philadelphia there were only two greenhouses which kept gardeners, though there were a few more in the suburbs. Such a thing as a bedding plant was unknown. Hardy herbaceous plants and box edgings made up the chief garden attractions, and only those who had greenhouses with rare exotics believed they had much of which to be particularly proud. The year after Mr. Buist settled in Philadelphia, the Pennsylvania Horticultural Society had its first grand exhibition, and from this time the love of gardening went steadily forward.

In 1830, Mr. Buist entered into partnership with Mr. Hibbert, and Hibbert & Buist did an immense business as florists at Twelfth and Lombard streets. They commenced at once the importation of rare plants and flowers, paying attention especially to the rose. This flower was and always will be popular, no matter how taste may change in other respects, and, next to the Camellia, perhaps, held the leading place in the regard of Philadelphians. Rapid and successful propagation was not then as it is now, and prices were correspondingly high. Good roses brought \$1, such as now sell for 35 or 50 cents. Among the importations of H. & B. about this time were the Noisette rose, Jaune des Prez, on which they made a clear profit of \$1,000. It should be here noted that Mr. Buist was the first to inaugurate the sale of plants in markets, or rather on the streets of Philadelphia—for Philadelphia has no floral market house—and it was through this far seeing plan that so many of the rare roses were sold. Finally, purchasing the interest of Mr. Hibbert on the latter's death, he commenced the seed business at 84 Chestnut street, in connection with the nursery and greenhouse business. As the business grew he took a larger one at 97 Chestnut street, and finally purchased the large building 922 Market street, and after

placing it on a substantial footing, resigned it to his second son, Robert, who has for some years past continued in the prosperous career commenced by his father.

Resuming, however, the floral part of Mr. Buist's career, it was not long after the introduction of the rarer roses that he obtained, through Tweedie, an energetic plant collector—and after whom Sir William Hooker named the genus *Tweedia*—the first of our pretty garden Verbenas, *V. Tweediana*. This Mr. Tweedie sent from Buenos Ayres, in 1834. Mr. Buist at once commenced their improvement, and with such success that his seedlings were in immense demand in Europe, and made him well-known there. In 1840, hundreds of plants of Verbenas—*Hendersonii*, *V. McArraniana* and *V. Buisti*—were sold in England. These were all seedlings of Mr. Buist. It may be here noted that it was in consequence of these Verbenas that Mr. Buist's name became familiar to the writer of this sketch, and which a few years later led to a correspondence, which finally resulted in the acceptance by him of an invitation by Mr. Buist to settle in Philadelphia. It was the improvement of the Verbena that first led to the introduction of the distinct class of bedding plants, which now form so large a part of the florists' trade. Large numbers of rare plants were not only introduced here for the first time through Mr. Buist's agency, but came directly from other countries, and sent by him for the first time to flower lovers in the old world. *Poinsetta pulcherrima* was his primal introduction through the Mexican Minister, Mr. Poinsett, and the double one, which has recently appeared and is so popular, was introduced into Europe by him. "It was," he said to the writer, "probably the first time in the history of the world that a sale of a flower was made by the ocean telegraph." He was extremely fond of improving flowers; and perhaps the last sale he ever made to Europeans was the whole stock of a pure dwarf white Azalea of his raising, which sale he made in the spring of the present year.

In 1848, his Twelfth street premises had become too small for his florist business, and he bought the land for the present famous Rosedale, in which the present writer became connected with him, remaining with him till the final removal of the establishment there in 1850.

But the influence of Mr. Buist on horticulture was not confined to the progress of horticulture

about his adopted city; he was well-known everywhere by his writings and by the encouragement which he gave to every literary enterprise of a horticultural character. His "Rose Manual," his "Family Kitchen Garden," and his "Flower Garden Directory," were in their day among the most popular of practical garden guides. When Mr. A. J. Downing first projected the *Horticulturist*, he found in Mr. Buist a good adviser and warm friend. After an interview with him by Mr. Downing, he gave the writer of this sketch an account of the project, expressed his desire that it might be a complete success, and hoped the writer would contribute notes to it, if able. The writer then suggested that if Mr. Buist would furnish him with a full set of varieties of any one kind of vegetable, he would make regular notes of their growth and relative value, and contribute them to the *Horticulturist*. This was done, and the article in time appeared, the first from the pen of the writer to any American magazine, through Mr. Buist's encouragement.

But, perhaps, in no way was Mr. Buist's influence on American horticulture more marked than by the encouragement he was always willing to give to the better class of European gardeners who desired to emigrate to America. Nothing gave him more delight than to have these men about him, and the knowledge of these generous traits made him a sort of head-centre of information. Those in need of skilled assistance looked to him for advice in time of need, to an extent that but few can have the slightest conception of. It was a happy thought in Col. Wilder, when presenting to the Massachusetts Society the memorial resolutions on Mr. Buist's death, to refer to this as among the greatest in the sphere of his usefulness. "He not only introduced rare plants, but rare men,—he did a double service." The Pennsylvania Horticultural Society, of which until his death he was one of the Vice Presidents, and the American Pomological Society, which he helped to establish, have lost in him one of their most energetic officers and sustainers.

Personally, Mr. Buist was tall, and to his death as straight as a well-trained soldier. He had been some time ailing, but long after he had ceased to take any interest in other worldly affairs, the *GARDENER'S MONTHLY*, and a favorite London horticultural paper were his constant companions, showing his interest in his favorite pursuit to the last.

And he had his faults as well as his virtues; of these it is not our province to write, but we will say, that these faults, whatever they may have been, were unlike the faults of many men. He had not one gross habit or taste. He was a model of justice, and honor, and plainness of speech; and if those, who think it is the part of a biographer to look at all sides of a man's life, choose to step into the writer's place, the worst that they could say of him would probably be that in the pursuit of what he believed just and true, he was no more able to hit the mark on every occasion than any other man. He came about as near to perfection as we may expect to find in our times.

Mr. Buist was thrice married. His eldest son died some years ago. He leaves behind him a widow; his only living son Robert, the well-known seedsman; and two daughters.

There being no one to succeed to his florist business it was closed out in 1876, only enough being retained to keep up his interest to his death. The city is fast growing towards Rosedale, and in a few years the chapter of his immediate work will be closed, and streets and buildings occupy the ground where the rare trees he planted and loved still interest the lovers of nature.

THE WESTERN FARMER OF AMERICA.—A letter to him by Augustus Mongredien, of London, Eng.—As the *GARDENER'S MONTHLY* is a horticultural and not a farming paper, we fancied there was a mistake in sending it to us for review, but in a note our "Sincere Friend," Mr. Mongredien, tells us "that the word 'farmer' is used to denote all producers of articles by the cultivation of the soil." Well, our "friend" commences by reminding us that "the golden rule for successful trading is 'to buy in the cheapest and sell in the dearest market.'" No man of any common sense doubts this. The only question is, which is the cheap one and which is the dear one? Mr. Mongredien, the "sincere friend of the western farmer," would have him believe that the lowest priced market is the cheapest for the buyer, and that this low priced market is his market, that is, the English market of course; for if the American were the cheaper, he would not be our "sincere friend." But every American buyer knows that low-priced things are not necessarily the cheapest, for there are cheap things that are likewise nasty and mean. It is not which market is low-

est and cheapest, but which is the cheapest and best.

To decide this we have to look on two pictures. Mr. Mongredien, in his sincere friendship for the western farmer, would have him send all his crops to Europe and pay a host of middlemen to buy in Europe and bring to him what he needs that he cannot raise himself. The western country, as it can raise corn more cheaply than England, should be content with being a huge farm for English people; and in that event, as Mr. Mongredien figures it out, they would save a few dollars in cash per annum, in so far as the mere purchases of these immediate necessities of life are concerned. But the "western farmer" the few past years, has learned a thing or two which his "sincere friends" over the way had forgotten to tell him; that there is such a thing as saving at the spigot and wasting at the bung; and while he was saving a dime by going to his English friends with his products, he was losing a dollar elsewhere. His "virgin soil" will some day be espoused to agriculture. It must then have manure, and this can always be had from towns and cities near him. The time comes when he cannot do all the work himself, he must have cheap labor, either in the shape of human muscle or machinery, and he wants these as near as possible to him, that he may get them on emergencies. He wants his children to be intelligent and cultured, and to have religious associations and refined companionship; and he knows that these only come from making numerous prosperous towns and villages over the length and breadth of this huge western farm. Besides all this, the western farmer is quite as much interested in the increased value of his land as in the price a bushel of corn will bring in London. So long as Europe is his only market his land will be of no more value than the principal sum represented by the profit on his acre of grain. It could never be worth over ten dollars an acre. But as soon as a town gets near him, he can sell milk, butter, eggs, chickens, cabbages, tomatoes, strawberries and raspberries; Norway spruces and Norway maples; roses and verbenas, or thousands of things that he could never dispose of in his "European market," and the result is, that from five to ten dollars his land goes to fifty, one hundred, or even two hundred dollars or more an acre, because of the facilities with which all these little extras can be turned into cash. The western farmer has been acting on this principle for some years past. Towns

and villages have sprung up everywhere about him. Manufacturers are prospering at his elbow, and buy almost everything he has to sell. Fruits and vegetables, and trees and flowers are in constant demand by these growing communities, and make profitable livings for thousands, who are in turn consumers of the farmer's bread and meat.

And here is the point of the whole argument. Is it wise to break up all these flourishing centres, which bring us in hundreds of dollars, simply because we might save tens by buying in the "cheapest" market? Mr. Mongredien thinks it would be. He does not seem to have heard that a man may be penny-wise and pound-foolish.

We have thus given our opinion of this work without any reference to party politics, which is out of the line of the *GARDENER'S MONTHLY*. If the policy of the Democrats or the Republicans, or of the Protectionists or the Free Trader, will do the most to make western towns and western industries flourish, go in for any of them; but it is folly to believe that the western farmer or fruit grower has any interest of consequence that is not also the interest of every flourishing industry in his own neighborhood.

THE VIRGINIAS.—Virginia according to the official figures just issued, has only increased twenty per cent. in population during the last ten years. It is one of the most magnificent States in the Union; the only want is an industrial population that can make use of the tremendous advantages everywhere about them. One of the most useful men in the State is Major Jed. Hotchkiss. He has devoted his whole life to the development of the industries of Virginia. Those of us who were on the agricultural editorial excursion through the State in 1871, remember well how much we learned from his thorough knowledge of the industries of the State.

Passing through Staunton recently with a small party in pursuit of scientific knowledge, we found him hard at work on a monthly serial, the *Virginias*,—that is Old and West Virginia—still with the old object, the development of industry. Virginia should honor such men. It may be all very well to boast of being the mother of Presidents, but to be the father of movements that will set a hundred thousand men to work to make a poor State rich, is just as much worthy of being boasted of. Though, as a Union officer at our elbow reminds us, "That Major Hotchkiss

gave us a world of trouble during the Rebellion, for he knew every road and bridle path through the State, and made maps of them for the Confederate army, there is no politics in "The Virginias." It is wholly a mining, industrial and scientific journal, and devoted to the development of Virginia and West Virginia, and nothing else; and there is no one at all interested in the pursuit of these objects but would be benefited by reading it.

MR. LAXTON'S PAPER ON ROSES.—In our last appeared an excellent paper on Roses, by Mr. Laxton, sent to us and revised especially for our pages by the author. At the same time he informed us that the bulk of the article had already appeared in our excellent contemporary the *London Journal of Horticulture*, and we wrote a postscript to Mr. Laxton's paper, stating this fact. It mortified us exceedingly to find our note not with the article on its publication. Whether we neglected to send what we wrote to the printer, or the note was lost in the composing room, we cannot now say, but we tender our apology to the *Journal of Horticulture* for the seeming neglect of its prior claim substantially to the article.

In our long editorial career, we have always endeavored to do full justice to all our contemporaries in the matter of credits, and we do not even now know that the *Journal* feels aggrieved at this—our first slip. In our anxiety to do full justice to all, we have often refused to publish excellent articles sent to us, when we happened to know that copies had been sent to other papers, and chiefly because, in case other papers published them first, we might be suspected of having "copied without credit."

NEWSPAPER PARAGRAPHS.—It is becoming dangerous to depend on newspaper paragraphs. The last instance is Mr. Dana's mushroom cave, which we find did not cost the third of \$3,000. It is fortunate, however, that the part which relates to the mushroom is correct. There is a cave; and there are mushrooms, and plenty of them. It would be very pleasant to have authentic particulars, as there are few matters of more public interest than successful mushroom culture.

PROF. C. E. BESSEY.—It has been announced that this accomplished botanist has undertaken the Botanical department of the *American Naturalist*, which is an excellent thing so far as it goes. If further he could influence the "editorial" pen, it might aid the editorial influence.

The reader of the editorial column will probably begin to think that there is little else than the "Academy of Natural Sciences of Philadelphia" in the whole United States to occupy scientific attention. The last number has several illustrations how little things are distorted in these "Editorial" articles. For instance, the one under consideration tells the reader that there is in the Academy a "silly opposition to the scheme of Professorships." Every one who chooses may know that the "scheme" was adopted and is part of the constitution and by-laws. It was Professor Cope's scheme to hand over the whole management of the Institution to a corps of Professors, that was properly objected to, nothing else. Then there are several pages devoted to the proper course of study for two boys who get there about five dollars per week!

It may, however, serve to explain to the readers of the *Naturalist* outside of Philadelphia, why so much space is given by the editor to this purely local question, to say that these editorials of Prof. Cope are usually reprinted from the *Naturalist*, and circulated among the members about election time as "campaign documents." Here in Philadelphia it is well known.

KANSAS STATE HORTICULTURAL SOCIETY.—Report for 1879, from Geo. C. Brackett, Secretary. Among other interesting matter is a portrait and sketch of the life of Dr. Howsley. It is an apt illustration of the adage, that we do not know our friends till we lose them. For near a quarter of a century, the writer of this met the Doctor "off and on," and learned to have a high regard for him, which this obituary notice tends very much to increase, though he is beyond any benefit save to his memory. It is a pity that testimonials to living men are so apt to run to mere adulation, or it would be better for many whiles living to receive some of the praise they get after they die.

FIRST ANNUAL REPORT OF THE BUREAU OF STATISTICS AND GEOLOGY OF INDIANA.—From Prof. J. D. Collett, Chief of Bureau. We have looked through this work with much pleasure, for much as we may admire the State from mere newspaper report, this official document shows more clearly what a great State it is. Every Indian must be proud of the showing made here. Half the State appears to be yet in timber.

PENNSYLVANIA FRUIT-GROWERS SOCIETY.—The Annual Meeting of this very useful body will be held at Gettysburg, on Wednesday, January 19th, 1881.

THIRTEENTH ANNUAL REPORT OF OHIO STATE HORTICULTURAL SOCIETY.—From Geo. W. Campbell. Besides the usual valuable matter, it has a portrait and biography of the late M. B. Bateham.

MR. SAMUEL L. BOARDMAN.—This gentleman, well known for so many years as editor of the *Maine Farmer*, and more recently of the *American Cultivator*, will now edit the *Home Farm*, of Augusta, Maine.

B. F. JOHNSTONE.—This esteemed gentleman well known as the editor of the *Michigan Farmer* was found dead in his bed by the side of his wife on the 25th of October, in his sixtieth year. Through the *Farmer*, he has been a weekly visitor to the office of the *GARDENER'S MONTHLY* for over twenty years, and always a welcome one. He was born in England, making Albany, N. Y., his early home, and removed to Detroit, in 1850.

THE LONDON JOURNAL OF HORTICULTURE.—Since its establishment, this able magazine has gone through several changes of form, and always with improvement. It has again advanced, and again improved, not only in appearance, but in interest. It is a first-class magazine.

THE SOUTHERN ENTERPRISE.—J. S. Newman, editor and publisher, Atlanta, Ga., has been changed from a folio to an octavo form. It is an excellent agricultural magazine and deserves every success.

THE CHARACEÆ OF AMERICA.—By Dr. Timothy F. Allen. Published in parts by S. E. Cassino, Boston, Mass. The *Characeæ* comprise plants which are often seen in aquariums, and must have attracted the attention of many who have

observed the weeds which exist in water on the beds of rivers and ponds. There are many classes of these weeds, but few more curious than those which cluster around the genus *Chara*. Some of them are so colorless and transparent that the fluids can be seen circulating under microscopes of comparatively low power, and hence they have been favorites with those desirous of knowing something of the wonderful workings of the inner life of plants. This work of Dr. Allen's gives colored illustrations and descriptions of these curious plants, which will tend to make the public better acquainted with them, and it will be as well a boon to the botanist, for our manuals of botany in general use tell us little about them. The manner of treatment is much as in "Eaton's Ferns," and as the size is the same, it will be an excellent companion to that useful and beautiful work. Parts 1 and 2 are now before us—all, we suppose, that has been so far issued; but we hope it will have a patronage that will warrant its completion. The work commences without any preface, introduction or advertisement, and affords no clue to how far it is to go, or where it will probably end. There are three plates and three chapters in first part, and two plates and three chapters—one without a plate in the third, the reason for the omission, as there are "explanations of plate" given, not being very apparent.

DAIRY FARMING.—By J. P. Sheldon. New York, Cassel, Petter & Galpin, Part 16. This number pays particular attention to American Dairying, giving as a frontispiece a map of the United States with those parts marked in colors that are most favorable to dairy work.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

THE MISSISSIPPI VALLEY HORTICULTURAL SOCIETY.

BY CHAS. CRUCKNELL, ST. LOUIS, MO.

The Mississippi Valley Horticultural Society held its first annual exhibition in the large hall of the Merchants' Exchange, this city, on September 7th, 8th and 9th. The display of fruit was large and fine, and came from two hundred exhibitors representing nineteen States, with a grand total of something over 8,000 plates. The

apple collection is said to have been the finest ever shown in this country. A novel feature of the fair was "Pomona's Pillar," a half-size facsimile of the obelisk recently brought to New York: its pointed crest towering up forty-five feet from the floor, almost touching the frescoed ceiling, and covered from base to apex on all sides with apples of the Ben Davis variety. Something over thirty barrels of apples were used in building it. Down the southern face of the pillar in bas-relief read the letters M. V. H. S.; the work was well done and proved a big

attraction. Only two collections of plants were exhibited. Michel & Son, florists, made a fine display of crotons, palms, ferns, agaves and cactuses. A large Erica rubra, eight feet high, was conspicuous; a fine specimen of the rare Ceroxylon niveum was prominent among the palms. This firm also exhibited a Mississippi steamer six feet long from stem to stern, of cut flowers, a beautiful design. The first premium was awarded this firm. The second collection was from William Syred, florist, to which the committee awarded the third premium.

The display of pears was good. Ellwanger & Barry, of New York, taking the first premium. The pears from California looked like painted fruit. P. Earle & Sons, Cobden, Ill., received the premium for the best dish of any variety, "Sheldon" carrying off the honor.

The premiums for the best five varieties for market use, awarded to J. S. Ragan, Independence, Mo. They were Bartlett, Sheldon, Beurre d'Anjou, Lawrence, and the Duchesse. For the best plates of Bartletts, premium to I. Rhodes, Bridgeton, Mo.; these were extra fine specimens. Ellwanger & Barry showed fifty varieties of plums. All that were exhibited, excepting two plates of Damsons from J. Rhodes, and one or two plates from other parties.

The display of grapes was something worth seeing. T. S. Hubbard, New York, awarded first premium for the best collection; one hundred and twenty-five varieties, the "Rogers' Hybrids" being very conspicuous for size and beauty. This firm exhibited a bearing cane, about two feet long, with twenty-five bunches of grapes on it. A seedling, the "Prentiss," awarded premium for best bearing cane of new seedling for table and market use, quality and productiveness to rule. Your correspondent mistook this grape for a White Delaware. Bush, Son & Meissner, of Missouri, awarded the second premium. This firm made an elegant exhibit. The Maxatawny, the Elvira and the Triumph, the latter being considered the finest dish of grapes for table use on exhibition, the bunches weighing from one to one and a half pounds, being well grown and handsomely shouldered. The Telegraph was also good and received the premium for that variety. This firm received the premium for the best ten grapes for wine. Messrs. Bush, Son & Meissner are extensive wine growers, and it may be of general interest to name the winning ten: Elvira, Missouri Riesling, Cynthiana, Rulander, Catawba, Herman, Herbermont, Taylor's Bullett, Cunningham, Norton's (Va.) Seedling. Mr. Isidore Bush considers Cynthiana the best wine, and Triumph the best table grape. Two dishes of foreign grapes grown out of doors were among this collection. A printed card stated they were grown from vines grafted on the American stock, and thus treated resisted the attacks of the Phylloxera, all of which may be true, but the fruit thus grown was a miserable failure.

James H. Ricketts, New York, was another large exhibitor; his seedlings looked very promis-

ing, particularly No. 97; a piece of cane one foot long, of "Lady Washington," a large white berried grape contained three bunches, weighing in the aggregate, five pounds, (guessing,) they were much admired and looked very tempting. This gentleman was also awarded premium to the best ten table grapes: They are, Jefferson, Iona, Delaware, Concord, Secretary, Naomi, Lady Washington, Excelsior, Allen and Quars-aick, (Queersick.) Premium for the best wine grape awarded to Romuel & Sobbe, Mo., for "Cynthiana," and best table grape for "Triumph." Surprise, a large berried amber-colored grape by S. H. Smallerop, Ky., received honorable mention.

Mr. Jefferson Davis exhibited a plate of Scuppernongs. The table of semi-tropical fruits from Louisiana, and Southern California, consisted of shaddocks, oranges, lemons, bud and blossom of bananas, of the growth of 1880, from the former State, and lemons, guavas, citrons, limes, almonds, pomegranates and quinces from San Diego, Cal., of the growth of 1879.

The apple collection is said to have been the largest ever exhibited, 6,000 plates being on the tables and many more not unpacked for which no room could be had. The best and largest came from Illinois, Missouri, Kansas, Michigan and Arkansas. In strong contrast to those from Missouri, was a collection from Minnesota; these were about half the size of the former, but very sound and handsome. On the same table and running parallel to each other were the Kansas collection, great, big, jolly-looking fellows, and a collection of the smallest, scrubbiest, and the wormiest looking things from the capital of the nation, Washington, D. C. It looked very much as if all the scrubs of the country had been gathered into one big collection and labelled, Washington, D. C.

The largest and handsomest plate of apples in the hall were labelled, "Beauty of the West." The premium for the best variety was awarded to the "Summer Pearmain." The following premiums were awarded. For best ten varieties North of 41st parallel of latitude:

Baldwin, Twenty Ounce, Spy, Golden Russet, Red Canada, Wagoner, Duchess of Oldenburgh, Maiden's Blush, Talman's Sweet, and Chenango Strawberry.

For the best ten varieties south of 37th parallel: Buckingham, Kinnard's Choice, Fulton, Shoekley, Smith's Cider, Yellow Bellflower, Wine Sap, Ben Davis, Kentucky Streak, and Pennsylvania Red Streak.

For the best ten varieties between the 37th and 41st parallel:

Willow Twig, Jonathan, Stark, Ben Davis, Rome Beauty, McAfee's Red, Smith's Cider, Rawle's Janet, Wine Sap, and Lawver.

The Mississippi Valley Horticultural Society is now an established fact and with the following named gentlemen as officers of the society its future success and prosperity is ensured:

Parker Earle, Cobden, Ill., President; Gov. Furness of Nebraska, Vice-President; Prof. S. M. Tracy of Columbia, Mo., Secretary; and H. G. McPike of Alton, Ill., Treasurer.

INDEX.—VOL. XXII.

- A**
- Abies and Picea, 371
 " concolor & Douglassi, 83
 " Mariesii, 99
 Abnormal Buds, 346
 Academy Nat. Sciences, Phila.,
 & Prof. Cope, 64, 183, 250
 Acer platanoides aurea var.
 Buntzeri, 327
 Accidents 'n Nature, 85
 Achyranthus Emersonii, 11, 44
 " Giesoni, 335
 Addressed Envelopes, 91
 Advancement of Science, So-
 ciety, 346
 Advertisers and Readers, 63
 Ageratum & Eupatoriums, 86
 Agricultural College, Sappora,
 Japan, 350
 " Society, New, 320
 " Penna., 352
 Agriculture, Conn. State B., 193
 " Dept. Report 1878, 30
 " Kansas State Board, 222
 Ailanthus glandulosa in French
 mountains, 115
 " Variegated, 317
 Alabama Fruit Culture, 275
 Alexander Peach, 113
 Alfilerilla, Mexican, 182
 Allen Peach, 81
 Almond Culture, 48
 " in History, 221
 Aloe in Winter, 184
 Alternanthera Lawn Plant, 165
 Alyssum as a Basket Plant, 44
 Amaranth, Sunrise, 138
 Amaryllis, 9
 American Banner Rose, 317
 " Coal in England, 126
 " Entomologist, 60
 " Forestry, 210
 " Forests in Europe, 278
 " Naturalist, 376
 " Nurseryman's Assn. 96, 160
 " Philo. Society, 121
 " Plants in England, 69
 " Pomological Society, 175
 " Roses, 94, 258
 " Trees in England, 197
 " French Gardens, 262
 America, Orchids in, 334
 " Rose Culture in, 133
 " Sky-lark in, 88, 100, 149
 " Western, Farmer, 374
 Ampelographs, 350
 Ampelopsis Japonica, 101
 " Tricuspidata, 5
 " Veitchii, 5, 263
 " Virginica, 327
 Anthurium andrearium, 203
 Ants, 219, 360
 Antiquity of Curculio, 370
 Anthrurium Magnificum, 367
 Aphis, Peach, 206
 " Strawberry Root, 117
 Aponogeton dystachyon, 326
 Apple for South of Baltimore, 48
 " Isham Sweet, 274, 341
 " leaf, Fungus, 308
 " Lili, 272
 " Mann, 209
 " Ribston Pippin, 304
 " Sweet Pippin, 207
 " Trade, 211
 " Tree Borer, Protecting
 from, 207
 " Winter, Penna., 81
- Apples and Pears in Eden, 50
 " " on Potomac, 144
 " for Australia, 208
 " for the South, 242
 " in Illinois, 81
 " in New York, 112
 " Packing for distant mar-
 kets, 112
 Apricot, Clingstone, 308
 Arboretum, Humphrey Mar-
 shall, Notes on, 16
 Arboricultural Census, 284
 Arboriculture, Statistics of, 17
 Arbor Vitæ, Tom Thumb, 34
 Aristolochia siph., 100
 Arkansas, Blue Grass in, 5
 Art, Decorative, 300
 Artificial Pine Apples, 305
 " Water in Gardens, 241
 Asclepias, Three Varieties, 245
 Asclepiadaceæ, 345
 Asparagus, Future of, 110
 " Grape Insects and, 339
 " Green, 81
 Assoc'n, Nurseryman's, 96, 191
 Atamasco Lily, 55 [22, 255
 Atmosphere and Forests, 217
 Auction Sales, 167
 Australia, Apples for, 208
 " Forests of, 17
 " Science in, 151
 Australian Botany, 111
 Autumn Berries, 317
 " Scenery, Virginia, 342
 " Sunflowers, 327
 Autumnal H. P. Roses, 312
 Azalea, Huge, 269
 " Mollis, 3
 Azaleas, 204, 269
- B**
- Bad effects of mild Winter, 133
 Balm of Gilead, 126
 Ballet, M., Death of, 31
 Baltimore, Apples South of, 48
 " Orchids at, 136
 Bamboo & Bamber, 313, 316
 Bark, Scraping, 47
 " Slitting, 79, 313
 Bars, Sash, 266, 339
 Barry, Mr., Downing on, 188
 Bartram, Oak, 182
 Basket Plant, Alyssum as a, 44
 Bachelor's Buttons, 55
 Bateham, M. B., Death of, 285
 Beautifying Railroad Lines, 195
 Beauty, Vegetables and, 82
 Bed-bug Killer, Lepidium, 13
 Bee and other Culture, 283
 Bees in Horticulture, 26
 Beetle, Grape, Steel blue, 240
 Beet Sugar Culture, 222
 Begonia-hybrida, 204
 " Schmidtiana, 10
 Beeheading Flies by a Plant, 24
 Belgium, Transplanting Trees
 in, 167
 Bengal Rose, 269
 Berries, Autumn, 327
 Bessey, Prof. C. E., 376
 Best Autumn H. P. Roses, 312
 " Grape, 81
 " Rose, 294
 " Strawberries, 48, 81
 Beurre Clairgeau Pear, 112, 173,
 Big Cucumbers, 305 [174
 Black Ant (Avena sativa), 218
 " Cap Raspberry, Sweet
 Home, 111
- Black Rust, 8
 Blight, Fruit Tree, 208
 Blister, Pear-leaf, 18
 Blue Glass and other Colors,
 119, 148
 " Grass, Arkansas, 5
 " " Kentucky, 327
 " Saliva splendens, 47, 87
 Boardman, Saml. F., 377
 Bouvardia, "oub e, 367
 Books and Flowers, 153
 Borer, Raspberry, 178
 Borer, Apple Tree, Protecting
 from, 207
 Border Plant, A new, 98
 Boston, Business in, 104
 " Forest Hill Cemetery, 125
 " Private Gardens, 101
 " Public Squares, 125
 Botanical Index on Size of
 Trees, 313
 " Names, Pronunciation, 151
 " Orthography, 23
 " Text-Book, 28
 Botanic Garden, Cambridge,
 122, 127
 " " Missouri, 150
 " Gardens, 55
 Botany, Australian, 111
 " for High Schools and Col-
 leges, 315
 " New Work on, 285
 " of California, 54
 Bouquet Making, 203
 " Pretty, 76
 Bouquets, Button-hole, 9
 Bourbon Roses, List, 260
 Bouvardia, Bride Brook'n., 351
 " Double, 334
 Bowers' Early Peach, 275
 Boyle's Nurseries, Phila., 60
 Brambleton Gardens, Norfolk, 94
 Brett Peach, 370
 Brighton Grape, 112, 142, 274,
 Broad Fir, 100 [368
 Brooks' Texas Almanac, 61
 Brown Beurre Pear, 340
 Bryophyllum Calycinum, 352
 Burgmansia suaveolens, 11
 Buds, Abnormal, 346
 Buffalo Grass, 87
 Buist, Robt., 284, 286, 314, 372
 " " Death of, 253
 " " Greenhouse Catalog, 127
 Bulbs, Greenhouse, 269
 Burbridgea nitida, 334, 335
 Burbridge's, Holland Roots, 284
 Burnett, Alex. Death of, 128
 Burnham Beeches, 313
 Burr, Amm'n. Death of, 62
 Bush Beans, New, 44
 Butter and Cheese in U. S., 56
 Button-hole Bouquets, 9
- C**
- Cactus, Fish-hook, 315
 Caladium esculentum, 23, 371
 " Wild, 311
 California and Colorado, 347
 " Botany of, 54
 " Deciduous Trees in, 55
 " Fillare of, 182
 " Forestry, 178
 " Fruit Insects, 341
 " Fruits, 144
 " Oranges, 80
 " Pears, 319
 " Phylloxera in, 48
 " Raisins, 81, 145
- Cal. Southern Ferns of, 180, 212
 Cambridge Bot Garden, 122, 127
 Camden Microscop. Soc., 256
 Camellia Culture, 189
 " Flowers, Cutting, 106
 Camphor and Tobac. Stems, 336
 Canada, Commerce, 158
 " Forestry in, 317
 " Nurseries in, 175
 " Raspberries in, 15
 Cancer Root, One-flowered, 86
 Canker Worm, Killing, 338
 Cardinal Flower, 68
 Carnation, P. Henderson, 170,
 Carnations, 212 [267, 331
 Carolina Fungi, Curious, 18
 Case's Botanical Index, 94
 Catalogues, Accurate, 158
 " Illustrated, 60
 " Noticing, 350
 Catalonian Jasmine, 44, 330
 Catalpa Bungei, 116
 " Dwarf, 5
 " Koempferi, 82
 " Posts, 307
 " Speciosa, 28, 116
 " Wood, 179
 Catalpas, 82
 " An Inquiry, 84
 " Confused, 343
 " Difference in, 53
 Catawba Grape, 369
 Cawthorp Oak, 219
 Cedar & Tamarak, Mich., 378
 " of Lebanon, 228
 " " Laurel Hill, Des-
 truction of, 39
 " Red, 41
 Cemeteries, Public Parks, 2
 Cemetery, Forest Hill, 125
 " G. rdening, 222
 Census, Arboricultural, 284
 Centaurea, 106
 Central Californian Forestry, 178
 Change in Fruit Tree, 281
 " " Rose, 281
 Cheat from Wheat, To tell, 316
 Cherry, Ne Plus Ultra, 208
 Chestnuts, Flour from, 218
 Chicago, Nurserymen's Assn. at,
 96, 160, 191, 223, 255,
 Chinese Gardening, 26
 " Primroses, How to
 grow, 200
 " Improved, 76
 Chloride of Methyl, 219
 Chrysanthemums, 44
 " Early Flowering, 134
 " Our Garden, 166
 Cincinnati Florist Business, In-
 crease, 267
 " Industl. Exhibition, 160
 Cinerarias, Double, 367
 " Five, 107
 Civilization, 91
 Clifton, Ohio, Handsome, 194
 Climate and Grape Culture, 345
 Climatic Differences, 20
 Climbers, Winter, 7
 Climbing Fern, Japan, 70
 " Plants, Query on, 284
 Clingstone Apricot, 308
 Clinton Flower Market, 167
 Codling Moth, Killing, 338
 Coe Grape, 369
 Coffee Culture in Liberia, 187
 " Fungus, 26
 Cold Greenhouses, 104
 " on Insects, Effects of, 87

- Coleus, Dreer's New, 76, 91, 95
 " Hybrid, New, 7
 Coleuses, One of Them selves, 67
 Collectors of Rarities, 347
 Colorado Beetle, 88
 Comfrey, Prickly, 12
 Coming of Christ, The, 253
 Compte de Lamay Peach, 242
 Compesque Riga du Parc Rose, 203
 Confused Catalpas, The, 243
 Coniferæ, Grafted, 39, 100
 Coniferous Flowers, Branch growth from, 23
 Connecticut, Hollyhock in, 135
 " State Board Ag., 192
 Conservatories, Small, Heating, 140
 Convention, Nurserymen's, 90, 160, 191
 Convolvulus arvensis, 345
 Cool House Orchids, Their Treatment, 71, 168
 Cook, Rev. Jos., Science by, 54
 Cope, Prof. and Acad. Nat. Sciences, 64, 185, 251, 376
 Copper in Plants, 313
 Cork Trees, 25
 Cornelia Koch Rose, 327
 Corn, Green, 14
 " Indian, Range of, 183
 Corrections, 191
 Correspondence, 252
 " Botanique, 61
 Correspondents and Editors, 219
 Corsica, Plants in, 313
 Cotoneaster, 101
 Cotton Worm, 93, 184
 Country Seats, Advertising, 89
 Cracked Peas, 241
 Cranston's Rose Nursery, Hereford, Eng., 326
 Cream of the Strawberries, 273
 Crocus, Mr. Bright and the, 249
 Croton Mooreanus, 105
 " spirale, 367
 Crotons, 105
 Cucumbers, Large, 48, 144, 305
 " White Japan, 81
 Cultivating Epigæa repens, 3
 " Fruit Trees, 112
 Culture, Almond, 48
 " Forest, 115
 " Lily, 204
 " Orchid, 170, 237
 " Pinella Hendersonii and other Plants, 231
 " Verbena, 106
 Curculio, Antiquity of, 370
 Curiosity of the Woods, 114
 Currant, Fay's Prolific, 370
 Cut Flowers, Designs of, 43
 " Flower Trade, 231, 329
 " Hybrids, 362
 " Tea Rose Trade, 264
 Cutting Camellia Flowers, 106
 Cyclamens, Diseased, 44
 Cypress, Nootka Sound, 70, 130
 Cypripedium barbatum, 267
 " insigne, 366
 Dahlias, Dwarf, 40
 Dairy Farming, 61, 94, 222, 377
 " Sheldon's, 157, 285
 Daisy, Ox-eye, 309
 Darlingtonia Californica, 121
 Darwinism, Refutation of, 92
 Darwin, Mr., Premium to, 151
 Datura arborea, 41
 Death of Balter, M., 31
 " Batcham, M. B., 285
 " Buist, Robt., 253
 " Burnett, Alex., 128
 " Burr, Ammon, 62
 " Evans, E. J., 190
 " Fenzl, Dr. Edw., 31
 " Fortune, Robt., 158
 " Gorden, Geo., 62
 " Harcourt, Col., 190
 " Hardin, Jno. W., 222
 " Howsley, Dr., 158
 " Johnson, Keith, 56
 " Johnstone, B. F., 377
 Death of King, D. Rodney, 61
 " Landreth, Dav., 127
 " Lincoln, D. Waldo, 285
 " Munz, H., 94
 " Souchet, M., 190
 " Stauffer, Jacob, 128
 " Verschaffelt, J. N., 253
 " Willermor, M., 31
 Deciduous Trees in Cal. 55
 Decorations, Public, 334
 " Table, 367
 Decorative Art, 300
 Degeneration of Potatoes, 113
 De medium penduliflorum, 38
 Designs of Cut Flowers, 43
 Destroying Wood Lice, 166
 Destruction of Insect Eggs by Frost, 121
 " of Plants in Winter, 216
 Dew, Honey, 282, 309
 Diary of a Bird, 158
 Dick, John, Jr., 158
 Differences, Climatic, 53
 Dignity of a Seedsman, 185
 Directions of Nutrition, 216
 Disappearance of Species, 21
 Discovery, Priority of, 95
 Diseased Cyclamens, 44
 Disease, Grape, New, 339
 Disease Greenhouse Plants, 77
 " Marechal Niel Rose, 268
 Disfigured Lawns, 69
 Dispersion of seeds, 25
 Distribution of Plants, 22, 118
 Dogs and Cats, Trapping, 273
 Double Bouvardias, 334, 367
 " Cinerarias, 106
 " Geraniums, 106
 " Petunias, 70
 Downing, Chas., 60
 " Note on Barry, 188
 Drainage, 123
 Dreer's New Coleus and Plate, 76, 91, 95
 Drip in Greenhouses, 76
 Drosera, and Darwin on, 184
 Drouth in Kansas, 247
 Drying Flowers, 183
 Ducks as Insect destroyers, 98
 Durability of Timber, 52, 116
 Durn Strawberry, 209
 Dust in Fishy Water, 251
 Dwarf Dahlias, 40
 " Catalpa, 5
 Earl of Beaconsfield Fuchsia, Origin, 44, 67, 172
 Early Flowering Chrysanthemums, 134
 " Grapes, 112
 " Peaches, 269
 " Rose Peach, 338
 " Strawberry, 273
 Earth Pressing Fruit, 35
 Earthen Fl. Pots, 172, 232, 268
 Eaton, Russell, P., 31, 188
 Eden, Apples and Pears in, 50
 Edible Earth, 247
 Editor, 50 Years on, 125, 251, 286
 Editorial Courtesy, 63
 " Letters, 26, 57, 89, 123, 347
 Editors and Correspondents, 219
 Eleagnus longipes, 197
 Electric Light, 177
 Elm, Marshfield, 216
 England, American Coal in, 126
 " Plants in, 69
 " Trees in, 197
 " and Starvation, 185
 " Floral Art in, 285
 " Fruit Culture in, 285
 " Primulas in, 98
 " Roses in, Cross Fertilizing and from Seed, 322
 " Sweet Potato in, 113
 " Tomatoes in, 48
 English Names, 151
 " Sparrow, 276
 " Strawberries, 48
 Envelopes, Addressed, 89
 Epigæa Repens, Cultivating, 3

- Ericine, 53
 Erodium, Cicutarium, 182
 Errors in Typography and Grammar, 60
 Essay, Henderson's, 131, 162
 Eucalyptographia, 61
 Eucharis Amazonica, 107, 171, 202
 Euonymus Radicans, 228
 Eupatoriums, 40, 86
 Euphorbia, 42, 329
 Europe, Amer'n Forests in, 278
 " Phylloxera in, 209, 250, 70
 " Roses in, 70, 226
 European Winter, 100
 " Pears, 273
 Evans, E. J., Death of, 190
 Ever-bloom'g Roses, Hardy, 227
 Evergreens, Rocky Mt., 83
 Everlasting Flowers, 44
 Evolution and Creation, 156
 " Made easy, 24
 Exotic and Indigenous, 217
 Extract from my Note Book, 179

F

- Facts are Stubborn Things, 205
 " on Ferns, 103
 Fairmount Park, 218, 250, 346
 Fall Planting Larch, 308
 Family Favorite Peach, 304
 Farrar's, Flower Sermon, 196
 Fast, Dr. Tanner's, 280
 Fay's Prolific Currant, 370
 Fences, Barbed Wire, 38
 Fenzl, Dr. Edw., Death of, 31
 Fern, Japan Climbing, 70
 Ferns, Hardy, Two, 165
 " of Southern Cal., 180, 212
 Ferny Facts and Fancies, 103
 Fertility of Forest Trees, 17
 Fertilization of Yucca, 121, 214
 " Sex in, 217
 Fibre, Raffia, 141, 177
 Fifty years Editor, 126, 251, 286
 Figs and Firs, 80
 Fine Cinerarias, 107
 " Geraniums, 352
 Fir, Broad, 100
 " Hybrid, 99
 " Japan, New, 99
 Fire Blight and Yellows, 339
 Fires, Forest, 178, 244
 " in Greenhouses, 43
 Firming Earth, 158
 First Impressions, 88
 Fish Hook Cactus, 335
 Flies and Mosquitoes, 123
 Flora, Round the World, 64
 " China & Japan, 371
 Floral Gossip, 236
 " Horse shoes, 44
 " Art in England, 285
 " Designs, 352
 Floricultural Progress, 95
 " Missionaries, 155
 Florida Correspondent on Nationality, 283
 Florist Business in Cincinnati, Increase, 267
 " Trade in London, 284
 Florists, Intelligent, 186
 Flower beds, Fairmount, 346
 " Cardinal, 68
 " Garden and Pleasure Ground, 1, 33, 65, 97, 129, 161, 193, 225, 257, 289, 321, 353
 " Gardens, Window, 30, 203
 " He Only Stole a, 349
 " Market, N. Y. City, 166
 " Pots, Earthen, 172, 232, 268
 " Sermon, 196
 " Trade, Cut, 231, 329
 Flowering of Catalonian Jasmine, 44
 " Raspberry, 87
 " ad. of Horse Chestnut, 101
 Flowers & Ferns U. S., 222, 285
 " Coniferous Branch Growth from, 23
 " Dressing Petals of, 284
 " Drying, 183
 Flowers, Everlasting 44
 " Fragrant, 201
 " Hybrid, 120
 " Preserving, German Method, 136
 " Winter Bloom, German Method, 77
 Foliation and Heat, 87, 121, 151
 Forcing Lilies, 77, 171
 " Lillium Candidum, 136
 Forest Culture, 115
 " Fires, 178, 244
 " Hill Cemetery, 125
 " Planting, Profits, 17
 " Trees, Fertility of, 17
 Forestry, 16, 51, 82, 114, 145, 178, 210, 243, 277, 305
 " American, 210
 " California, 178
 " in Canada, 307
 " in N. A., 277, 305, 341
 Forests, Amer'n, in Europe, 278
 " and the Atmosphere, 217
 " of Australia, 17
 " of California, 56
 " Pine and Oak, 145
 Fortune, Robt., 94
 " Robt., Death of, 158
 Fossils of South Carolina, 123
 Fowl Meadow Grass, 281
 Fragaria vesca, 99
 Fragrant Flowers, 201
 " Olive, 298
 Frames for Tender Plants, 107
 Freas, Maj., Grounds of, 40
 Freezing of Sap in Plants, 55, 247, 282, 286
 French Collection of Roses, 326
 " Mountains, Ailanthus in, Re-wooding, 115
 " Vineyards, 287
 " Wine Districts, Destruction of, 154
 Frost, Insect Eggs, Destruction by, 121
 Frozen Soil, Growth in, 246
 Fruit and Vegetable Gardening, 45, 77, 108, 141, 172, 204, 237, 269, 301, 336, 368
 " Culture in Alabama, 275
 " England, 240
 " N. Carolina, 243
 " Questions in, 274
 " Delaware, 88
 " Farm, Nebraska, 273
 " Grower's Friend, 158
 " Soc. Pa., 32, 95, 376
 " Insects in California, 341
 " Tree Blight, Mildew and Rust, 208
 " Change in a, 281
 " Grafts, Selecting, 50
 " Trees, Cultivating, 112
 " June Budding, 177
 " Non-production, Causes of, 109
 " Queries, Various, 16
 Fruiting of Wistaria, 24
 Fruits, Californian, 144
 Improvement of, How to Stimulate, 15
 " in Pots, 47
 " Kansas, 340
 " New, Progress in, 142, 205
 " Patent, 47
 Fuchsia, Earl Beaconsfield, 44, 67, 172
 " Globosa, Origin, 104
 " Serratifolia, Notes on, 230
 Fuchsias, Standard, 198
 Fungus and a New Life, 249
 " Carclina, Curious, 18
 Fungus, Apple Leaf, 308
 " Spores, 216
 Furor in New Grapes, 208
 Future of Asparagus, 110
 Garden, American, The, 188
 " and Field Culture, Development, 153
 " Chrysanthemums, Our, 116
 " New Brunswick, 285

G

- Garden Scions, 325, 356
 " South Carolina, A., 166
 " The, 166
 " Vine, The, 39
 Gardeners Situations, 154, 311
 " Injustice to, 125
 " Monthly, 60, 349
 " Founder, Death, 61
 " Kind Words for, 185
 Gardening, 223
 " and Gardeners, 253, 286
 " at Hampton Court, 88
 " at Railroad Stations, 56
 " in its Higher Sense, 153
 " in Southern Mountains, 347
 " Land-cape, 263
 " Market, 276, 336, 338
 " Neatness in, 139
 " Old fashioned, 198
 " Pleasures of, 2
 " Tooth, 26
 " Varying Taste in, 101
 Gardens, Artificial Water in, Botanic, 55 [241
 " Farm, 70
 " French, Amer. Trees in, 262
 " Public Parks and, 326
 " Superintendents, 32
 " Spr ng, Semi tropical and Alpine, 284
 " Various, 47
 " Winter, 101
 Gas Injurious to Window Plants, 106
 Gems & Greengrocery, 372
 Genista tinctoria, 311
 Gentiana Andrewsii, 346
 Geography of Pellea atropurpurea, 87
 Georgia State Hort. Society, 288
 Geranium, Henry Cannell, 202
 " New Life, 230
 Geraniums, Double, 106
 " Fine, 352
 German Method, Preserving Flowers, 136
 " Winter flower'g, 77
 Germantown, Phila., 134
 Gilead, Balm of, 126
 Girdling Trees, 309
 Gladioli, or Gladioluses, 350
 Gladioli conmunis, 357
 Glass, Blue and Other Colors, 119, 148
 " Roofs, 203
 " Toughened, 10
 Glazing Without Putty, 10
 Globose seed. Phænosperma 229
 Glorie d'O Orleans Pelargonium Gloxinias, 75 [566
 " Upright, 9
 Going Round the World, Flora in, 64
 Golden Cup Oak, 217
 " Gate Park, San Francisco
 Gomphrena Globosa, 55 [101
 Goodale, Pr f. of Cambridge
 Botanical Garden, 122
 Good Men in Parks and Gardens, How to Get, 63
 " Peaches, 14, 209
 Gooseberries, Standard and Other, 241, 303
 Gooseberry, Orange, 243
 " Smith's Improved, 210
 Gordon, Geo., Death of, 62
 Gossip, Floral, 236
 Go West, Young Man, 184
 Grafted Coniferæ, 39, 100
 Grafting Grapes, 48
 " Peach Tree, 340
 " Pear on P. Japonica, 82
 Grafts Fruit Trees, Selecting, 50
 Grape Beetle, Steel Blue, 240
 " Best, 82
 " Brighton, 112, 142, 274, 368
 " Catawba, 369
 " Coe, 369
 " Culture, Climate and, 345
 " Disease, New, 339
 " Grafting the, 48
 " Grizzly Frontignan, 249
 " Growing and Wine Making, Hussman's, 189
 Grape, Hayes, 340
 " Insects and Asparagus, Jefferson, 142, 191 [339
 " Lady Washington, 81
 " Moore's Early, 339
 " Prentiss, 48
 " Rot, 112
 " Seedling, 340
 " Wild, Odor of, 250
 Grapes, Dr. Wyllie's, 48
 " Early, 112
 " for Profit, 80
 " Hot-house, Mealy Bug in, 304
 " in Grape Houses, 273
 " List of, 175
 " New, Furor in, 208
 " White, 340
 " Ricketts', 112
 " White, 115
 Grass, Blue, in Arkansas, 5
 " Kentucky, 327
 " Buffalo, 87
 " for Lawns, 263
 " Fowl Meadow, 281
 " Paper from, 241
 Grasses, Ornamental, 4, 44
 Gray, Asa, 317
 " Wm. Jr., Grounds of, 101
 Greeley, Col. Progress, 284, 350
 Green Asparagus, 81
 " Color of Plants, 122
 " Corn, 14
 Greenhouse and House Gardening, 5, 41, 71, 102, 135, 168, 100, 230, 264, 295, 361
 " Building, Slate in, 363
 " Bulbs, 269
 " Insects, Destruction of, 73
 " Plants, Disease in, 77
 " Good, 235
 " for, in Summer, 138
 " Watering, Hose, 363
 Greenhouses, Cold, 104
 " Drip in, 76
 " Fires in, 43
 " Neat, 217
 " Steam Heating in, 107, 137, 169, 201, 231, 295
 Ground Plan of a Park Scene, 66
 Growing Mushrooms, 113, 339
 " Orchids, 334
 " Peaches, 81
 " Pine Apples, 370
 Growth, Osage Orange, 53
 " Timber, 179
 " Trees in Frozen Soil, 246
 Gum Tree, A Curiosity, 114
 " Tall, 37
 Gutta-percha, 371
 Half-hardy Greenhouse Plants, 336
 " Gate Park, San Francisco
 Handsome Plants, Some, 299
 " Town, Clifton, Ohio, 114
 Harcourt, Col., Death of, 91
 Harden, Jno. W., Death of, 212
 Hardiness of Hyacinthus candidans, 377
 " Japan Ligustrums, 40, 66
 Hardy Ever-bloom. Roses, 227
 " Ferns, Two, 165
 " Heaths, 268
 Hayes Grape, 310
 Hazel-nut Trade, Turkish, 14
 Hear, Foliation and, 87, 121, 151
 Heating by a Limekiln, 76
 " Steam in Greenhouses, 107, 137, 169, 201, 233, 265
 " Hotheuses, 42
 " Illinois, Apples in, 81
 " Hort. Society, 127
 Imandevilia suavolens, 127
 Importation of Living Plants, Prohibiting, 113
 Improved Garden Marigol's, 4
 " Hepaticas, 227
 " Lemons, 50
 " Potentillas, 69
 " Pyrethrums, 4
 " Roads, 3
 Henrietta Peach, 339
 Henry Cannell Geranium, 202
 Hepaticas, Improved, 227
 Herbaceous Plants, 123
 Herbarium, Kew, 317
 Herpestes reflexa, 4
 Hints, Seasonable, 1, 5, 11, 33, 41, 48, 65, 77, 97, 102, 168, 179, 193, 194, 101, 168, 172, 295, 301, 321, 328, 353, 361
 Hollyhocks, 70, 130, 131
 Hollywood Park, 132, 163
 Honey Dew, 282, 309
 Honeysuckles, 199
 " Three Popular, 293
 Horse chestnut, Second Flowering of, 114
 Horse-shoes, Floral, 44
 Horticultural Authority, 253
 " Hall, Philada., 96
 " Information, 314
 " Progress, 131, 162, 167
 " Societies, 32, 64, 94, 159, 191, 223, 254, 286, 317, 351, 377
 " Instructive, 320
 " January Meetings, 32
 " Society, Georgia, 288
 " Ills., 127
 " Iowa, 190
 " Kansas, 160, 254, 376
 " Ohio, 377
 " Kentucky, 32, 96
 " Maryland, 287
 " Mass., 64, 122, 160
 " Miss. Valley, 123
 " Montreal, 31 [377
 " N. Y., 32, 160, 192
 " Pa., 59, 92, 319
 " Portage Co., O., 287
 " Wor. Co., Mass., 64, 95
 Horticult. at Paris Exhibit., 188
 " Humbugs in, 286, 317, 519
 " in Texas, 287
 " Woman in, 210
 Hose watering Greenhouses, 363
 Hot-house Grapes, Mealy Bug in, 304
 Hot-houses, Heating, 42
 House plants, Hygienic and Therapeutic Relations of, 295, 300, 331
 Howsley, Dr., Death of, 159
 How to make a Living, 123
 " Prepare Sumac, 114
 " Propagate Mistletoe, 131
 Hovey, C. M., 350 [131
 Huge Azalea, 268
 Humbugs in Horticulture, 286, 317, 351
 Husbandman, 80
 Huxley's Physiographia, 184
 Hyacinthus candidans, 327
 Hybrid Coleus, New, 7
 " Cut-flower Trade, 362
 " Heliotrope, 183
 " Fir, 39
 " Flowers, 120
 " Pear, Kieffer's, 15
 " Perpetual Roses, 260, 322
 " Perpetual, Climbing, 360
 Hybridizing Strawberries, 177
 Hydrangea paniculata, 197, 227
 " Thunbergii, 197
 Hygienic and Therapeutic Relations of House plants, 295, 300, 331
 Identity, Animals and Plants, Proof, 122
 Illinois, Apples in, 81
 " Hort. Society, 127
 Imandevilia suavolens, 127
 Importation of Living Plants, Prohibiting, 113
 Improved Garden Marigol's, 4
 " Hepaticas, 227
 " Lemons, 50
 " Potentillas, 69
 " Pyrethrums, 4
 " Roads, 3
 Improvement of Fruits, How to Stimulate, 15
 Improvements, 130
 " in Propagating, 236
 Indian Bureau Statistics, 376
 " Corn, Range of, 183
 " Question, The, 31
 India Rubber and Gutta-percha, 347
 Indicum nanum Geranium, 134
 Indigenous and Exotic, 217
 Industrial Exhib., Cincin., 160
 Information, Horticultural, 314
 Injustice to Gardeners, 125
 Insect Destroyers, Ducks as, 98
 " Eggs, Destruction by Frost, 121
 Raspberry Root, 143
 Insects, Effects of Cold on, 87
 " Fruit, California, 341
 " Grape and Asparagus, 339
 " Greenhouse, Destruction of, 73
 " in 1880, 304
 " Noxious, models of, 80
 " Pine tree, 51
 " Yeast to Destroy, 369
 Instincts of Fish, 25
 Instructive Hort. Societies, 320
 Introducing Skylarks, 100
 Iowa Hort. Society, 190
 Irish Yew, 227
 Isham Sweet Apple, 274, 341
 Ivy-leaf Pelargonium, 366
 Jacques' Notes, 24, 55, 88, 122, 153, 183, 218, 249, 283, 312, 340, 372
 Japan Agricul. College, Sapporo, 350
 " Climbing Fern, 70
 " Cucumber, White, 81
 " Fir, New, 99
 " Jasmine, 70
 " Persimmon, 16, 47, 143, 208, 239, 369
 " Snowball, 134
 Japanese Ligustrums, Hardiness of, 40, 66
 " Scientists, 25
 Jasmine Catalonian, 44, 330
 " Japan, 70
 Jasminum grandiflorum, 365
 Jean Ducher Tea Rose, 3
 Jefferson Grape, 142, 191
 Johnson Keith, Death of, 56
 Johnstone, B. F., Death, 377
 Josephine de Malines Pear, 342
 Jules Chretien Rose, 134
 June Budding Fruit Trees, 177
 Kansas, Drouth in, 247
 " Fruits for, 340
 " Southern, Trees of, 148
 " State Board Agricul., 222
 " Hort. Soc., 160, 254, 376
 Keeping one Cow, 350
 Kenia Blue Grass, 327
 " Hort. Society, 32, 96
 Kew Herbarium, 317
 Kieffer's Hybrid Pear, 15, 49
 Killing Coding Moths and Canker Worms, 338
 Kind Words, 185
 King, D. Rodney, Death of, 61
 Kirkwood Strawberry, 273
 Knowledge, Love of, 26
 Kreigh Raspberry, 276
 Ladies' Floral Cabinet, 94
 Lady Washington Grape, 81
 La France Rose, 229, 293
 Lamo Stoves, 140
 Landreth, Burnet, on Hort., 250
 " David, Death of, 127
 " The Late, 188
 Landscape Gardeners, Intelligent, 185
 " Garden ng, 263
 Langdon, C. C., 285
 " Nurseries, 253

Lantanas, 70.
Lapageria, 366.
Larch Fall-planting, 308.
Large Cucumbers, 48, 144, 305.
" Live Oaks, 114.
" Oak, 17.
" Oranges, 80.
" Potato Order, 144.
" Watermelon, 276.
Larix Europaea, 17.
Larva of Rose Bug, Damage by, 138.
Laurel Hill Cedar of Lebanon, Destruction, 39.
Lavender, Plea for, 325.
La Vigne Francaise, 316.
Lawn Plant, Alternanthera, 165.
Lawns, Disfigured, 69.
" Grass for, 263.
" Making, 99.
Laxton's Marvel Pea, 81.
Laxton on Roses, 376.
Leadville, Glacier near, 185.
Leaves, Morphology of, 23.
Lebanon, Cedar of, 39, 228.
Lecture on Squashes, 188.
Lemon, Olivia, 177.
Lemons, Imp. oved, 50.
Lenning's White Strawberry, 80.
Lepidium, Bed-bug destroyer, 13.
Letters, Names but no Addresses, 127.
Liberia, Coffee Culture in, 187.
Life, Origin of, 247.
Light, Electric, 175.
Ligustrum, Japanese, 40, 66, 102.
Lilies, 69.
" Forcing, 77, 171.
Lilium candidum, 136.
" Carolinense, 3.
" Parryi, 294.
Lily, Atamasco, 55.
" Culture, 294.
" of the Field, 316.
Limekiln, Heating by, 76.
Lincoln, D. W., Death of, 285.
Liquidambar styraciflua, 17.
Literature, Travels and Personal Notes, 24, 55, 88, 122, 153, 183, 218, 249, 283, 311, 346.
Litz Apple, 272.
Little Things, Value of, 26.
Live Oaks, Large, 114.
Living Plants, Prohibiting Importation, 113.
Local Names, 304.
Locusts die off in August, 183.
London Journal Hort., 377.
" Market Gardening, 276, 336, 338.
Long Term of Edw. Meehan, 127.
Lonicerum, List of, 199.
Louis Philippe Striped Rose, 135.
Lost Ring, A, 219.

M

Magnolia acuminata, 17.
Maiden Hair Tree, 151, 360.
Making Lawns, 99.
Making Things Pay, 240.
Mann Apple, 209.
Manning, J. W., 159.
Manual, American, Parliamentary Law, 31.
Maple, Red Colchican, 359.
Marechal Niel Rose, 330.
" Neil Rose Cut-flower Trade, 329.
" Disease in, 268.
" Large, 236.
" Origin of, 100, 336.
Marie Carnation, New, 107.
Marigolds, Impr. ved, 4.
Marketable Pear Trees, 238.
Market Gardening, 276, 336, 338.
Marquis of Bute, Colonization scheme, 313.
Marshfield Elm, 316.
Maryland Hort. Society, 287.
Mass. Hort. Soc., 64, 122, 160.
" Tree Planting in, 146.
Maurandia Barclayana, 39.

Mead, Peter B. on Plants in Rooms, 61.
Mealy Bug in Hot-house Grapes, 304.
Measuring Height of Trees, 53.
Meehan, Edw., Service of, 127.
Meehan's Stone Crop, 309.
Melons and Potatoes, 175.
Memorial Trees, 38, 133, 268, 359.
Mexican Vegetables, 272.
Michaux, F. Andre, 159.
Mich. Ag. Col. Experiments 317.
" Pomol. Society, 192.
Microscopical Society, Camden, 256.
Milnew, 208.
Missionaries, Floricultural, 155.
Miss. Valley Hort. Soc. 223, 377.
Missouri Botanic Garden, 150.
Mistletoe, To Propagate, 134.
Mite, Pear leaf, 85.
Montreal Hort. Society, 31.
Moon, Mahlon, 285, 317.
Moore's Early Grape, 339.
Morphology of Leaves, 23.
Mosaic ture, 126.
Moss Mulching, 298, 340.
" Rose, Introduction of, 252.
Moths, Yucca, 248.
Movements of Plants, 247.
Muck, Swamp, 209, 368.
Mulching, Moss, 298, 340.
Munz, Herman, Death of, 94.
Muscle Beating, 189.
Mushroom Growing, 113, 339.

N

Names, English, 151.
" Local, 304.
" of Plants, 44, 151.
Nantucket, Engl. Heath in, 281.
Napoleon's Willow, 317.
Natural History, 313.
" and Science, 18, 54, 84, 116, 148, 179, 212, 245, 279, 308, 344, 371.
" Science and Religion, 156.
Nature, Accidents in, 86.
Neat Greenhouses, 297.
Neatness in Gardening, 139.
Nebraska Board Agriculture, 190.
" Tree Planting in, 53.
Ne Plus Ultra Cherry, 208.
New Agricultural Society, 320.
" Border Plant, 98.
" Botany, by Bessey, 285.
" Brunswick Garden, 285.
" Bush Beans, 144.
" Carnation, Marie, 107.
" Double Var., Sweet Allysum, 236.
" Early Peaches, 269.
" Fruits, Progress, 147, 205.
" Grape Disease, 339.
" Grapes, 208.
" Hardy Ornamental Shrubs Prize Essay, 188.
" Hybrid Coleus, 7.
" Japan Fir, 99.
" Life Geranium, 230.
" Method with Tuberoses, 17.
" Native Plums, 339, [356].
" Ornamental Grasses, 4.
" or Rare Native Plants, 151.
" Peas, 113.
" Southern Peaches, 304.
" Varnish Plants, 345.
" Verbenas, 326.
" White Grapes, 340.
" York Hort. Society, 32, 160, 192.
" York City Flower Market, 166.
" Leading Apples, 112.
Newspaper Paragraphs, 376.
Niagara International Park, 196.
Nicotane suaveolens, 118, 166, 326.
Noisette Rose, Origin, 315.
" Roses, List of, 259.
Non-production of Fruit Trees, Causes, 109.
Nootka Sound Cypress, 70, 130.

Nordensjold Prof. Voyage, 88.
North America, Forestry in, 277, 305, 341.
" Carolina Experimental Station, 222.
" Fruit Culture in, 243.
Norway Spruce Varieties, 360.
Note Caladium Esculentum, 23.
Notes and Queries, 153, 254, 286.
" from Col. Wilder, 191.
" South Carolina, 215.
" Wash. Territory, 181.
" Fuchsia Serratifolia, 230.
" Primulas, England, 98.
" on Trees of Humphrey Marshall, 16.
" Short, 14.
Novelty in Roses, 9.
Noxious Insects, Models of, 80.
Nurseries in Canada, 317.
Nurserymen's Asso. 96, 160, 191, 223, 255.
Nutrition, Directions of, 216.

O

Oak and Pine Forests, 145.
" Bartram, 182.
" Cawthorp, 219.
" Golden Cup, 217.
" Large, 17.
Oaks, Live, Large, 14.
Obituary, 31, 56, 61, 62, 94, 127, 128, 158, 190, 222, 253, 285, 377.
Odors, 250.
Ohio Journal of Floriculture, 127.
" Horticultural Society, 377.
Old-fashioned Gardening, 198.
Oleander, 252.
" on Rose Laurel, 43.
Olive, Fragrant, 298.
One-flowered Cancer Root, 86.
Orange Gooseberry, 243.
" Trees, Small, 249.
" Wine in Florida, 56.
Oranges, California, 80.
" Large, 80.
Orchard House, Japan Persimmons in, 239.
" Trees, Scale on, 242.
Orchid Culture, 170, 237, 334.
Orchids at Baltimore, 136.
" at Public Sale, 172.
" Cool and their Treatment, 71, 168, 364.
" in America, 334.
Origin of Fuchsia Globosa, 104.
" of Life, 247, 286.
" Noisette Rose, 315.
" M. Niel Rose, 100, 136.
Ornamental Grasses, 4, 44.
" Osage Orange, 70.
Ornithologist, Wilson, 248, 314.
Osage Hedges, 358.
" Pruning, 2, 26.
" Orange, Ornamental Tree, 70.
" Rapid Growth, 53.
Ox-eye, Daisy, 309.

P

Packing Apples for Distant Markets, 112.
Palms, 335.
Palm, Sago, Rooting a, 268.
Paper From Grass, 241.
" Makers, Wood for, 307.
Park Decoration, Western, 354.
" European, Plan of, 66.
" Fairmount, 218, 250.
" from the Queen, 40.
" Hollywood, 132, 163.
" Internat'l, Niagara, 196.
Parks & Gardens, 226.
" Good Men in, 63.
Parnell Peach, 275.
Partridge Berry, Planting, 99.
Patent Fruits, 47.
Patents, Plant, Those, 62.
Paterson Nurseries, 285.
Paths and Roads, 227.
Paulonia, and Euphorbia, 329.
" thalictifolia, 269, 300.

Paulonia, Wood of, 82.
Pay, Making Things, 240.
Pea, Laxton's Marvel, 81.
Peas, European, 273.
" New, 113.
Peanut, The, 48.
Peach, Alexander, 113.
" Allen, 81.
" Aphs, 206.
" Brett, 370.
" Bower's Early, 275.
" Early Rose, 338.
" Family Favorite, 304.
" Foster, 48.
" Growing, 81.
" Henrietta, 339.
" Packing in Baltimore, 56.
" Parnell, 275.
" Rivers' Early Silver, 208.
" Schumacher, 81, 177, 276.
" Susquehanna, 272.
" Trees, Grafting, 340.
" Waterloo, 177.
" Yellows, 49, 145, 243.

Peaches, Good, 15, 209.
" List of, 175.
" New Early, 269.
" Southern, 304.
Pear, B. Clairgeau, 112, 173, 174.
" Brown Beur, 340.
" Compte de Lamay, 242.
" Grafting on Pyrus Japonica, 82.
" Growing, Forty years of, 157.
" In the South, 81.
" Josephine de Malines, 242.
" Kieffer's Hybrid, 15, 49.
" Leaf Blister, 18.
" Mite, 85.
" Progenitors, 187.
" Seckel, The Original, 270.
" 272, 339, 370.
" Tree and Ornamental Plants, 325.
" Tyson, 304.
" Winter Nelis, 112.

Pears, 26.
" & Apples in Eden, 50.
" on the Potomac, 144.
" California, 369.
" Cracked, 241.
" Lover of, 242, 286.
Pelargonium, Glorie d'Orleans, 366.
" Striped, 365.
Pellea atropurpurea, Geographical, 87.
Penna. Agricultural Society, 352.
" Fruit Growers' Soc., 32, 95, 376.
" Hort. Soc., 159, 192, 319.
" Scarcity of Wood in, 82.
" Winter Apple, 81.
Pentstemons, 70.
Perfumes, 89.
Periodical Disappearance, of Species, 21.
Perle des Jardines Rose, 334.
Persimmons, Japanese, 16, 47, 79, 143, 208, 239, 369.
Peter Henderson Carnation, 170, 267, 331.
Petroleum Business, 372.
Petunias for Floral Display, 325.
Phaenospema globosa, 229.
Phila. Acad. Nat. Sciences, 64.
" Horticultural Hall, 96.
" Pub. in Squares, 226.
Philosophical Society, American, 121.
Phrenology, Illustrated Annual, 61.
Phylloxera, American Grape Vines and, 208.
" in California, 48.
" in Europe, 209, 250, 370.
Picea and Abies, 371.
" Pungens, 182.
" Several Species of, 83.
Pickweed, 280, 281.
Pimela Hendersonii and other Plants, Culture, 231.
Pindars, 351.
Pine and Oak Forests, 145.

Pine Tree Insects, 51.
Pine Apples, Artificial, 305.
" Growing, 370.
Pinus Balfouriana, 121.
" ponderosa, 84.
Pitcher Plants, Varieties of, 217.
Planting, Forest, Profits of, 17.
" The Partridge Berry, 99.
" Tree, 146, 153.
" in Mass. 146.
Plant Doctors, 372.
" Patents, 62.
" Queries, 106.
" Resurrection, The, 245.
Plants, American in England, 69.
" Distribution of, 22, 118.
" Freezing of Sap in, 55, 247, 282.
" for Greenhouse in Summer, 138.
" Green Color of, 123.
" Greenhouse, Disease, 77.
" Good, 235.
" Living Rooms, 60, 295, 300.
" Movements of, 247.
" Names of, 44, 151.
" Native, New or Rare, 151.
" Some Handsome, 299.
" Standard, 198.
" Tender, Frames for, 107.
" Winter, Destruct'n of, 216.
Plea for the Old-fashioned Lavender, 325.

Pleasures of Gardening, 2.
Plough vs. Spade, 317, 337.
Plumbago capensis, 326, 365.
" larpente, 326.
Plums, 338.
" New Native, 339.
Poisoning by Stramonium, 246.
Poison Vines, 184.
Polyanthus, 99.
Pomological Soc. American, 75.
" Mich., 192.
Pond Lilies in Boston, 56.
Poplar for Paper, 307.
Popular Honeysuckles, Three, 228, [293].
" Strawberries, 273.
Portage Co., O. Hort. Soc., 287.
Portlandia Grandiflora, 9, 103.
Portulacae, Double, 70.
Posts, Catalpa, 307.
Potatoes and Melons, 175.
" Degeneration of, 113.
" Sweet, 14.
Potato in Salt Lake City, 315.
" Order, A Large, 144.
" Sweet, in England, 113.
Potentillas, Improved, 69.
Potomac, Pears & Apples, 144.
Pots, Fruits in, 47.
Practical Taxidermy, 127.
Prairie Roses, List of, 259.
Prenitiss Grape, 48.
Preservation, Animal and Vegetable, Wicksham Process, 14.
Preserving Flowers, German Method, 136.
Pressing Earth Firm, 35.
Prickly Comfrey, 12.
Primroses, Chinese Improved, 76.
" How to Grow, 200.
" Rupp's, 104.
Primulas in England, 98.
Priority of Discovery, 95.
Profit, Grapes for, 80.
Profits of Forest Planting, 17.
" of Timber Culture, 147.
Progress, Horticultural, 167.
" in New Fruit, 142, 205.
" Newspaper on Mushrooms, 56.
Pronunciation of Botanical Names, 151.
" Terms, 372.
Propagating, Improved, 236.
" Maiden Hair Tree, 360.
Propagate Mistletoe, How to, 134.
Protection of Trees from Sun, 302.

Pruning Injured Trees, 133.
" Osage Hedges, 226.
" Root, 47.
Ptelea trifoliata, 23.
Public Decorations, 334.
" Gardens, Superintendents of, 32.
" Cemeteries, 2.
" Parks and Gardens, 326.
" Roads, 69.
" Spirit, 294.
" Squares of Boston, 125.
Purdy's Fruit Instructor, 286.
Putty, Glazing Without, 10.
Pyrethrum, Improved, 4.
Pyrus Japonica, Pear Grafting on, 82.
" The Progenitor of the Pear, 187.

Q

Quassia for Insects, 218.
Queen Gives a Park, 40.
" of Market Raspberry, 16.
Quercus heterophylla, 17.
" Phellos, 17.
Queries, 367.
" Fruit, Various, 16.
" Plant, 106.
Question, Indian, 31.
Questions on Fruit Culture, 274.
Quinces, 346.

R

Radish, Sea, 305.
Raffia Fibre, 141, 177.
Railroad Lines, Beautifying, 195.
Raisins, California, 81, 145.
Raspberries in Canada, 14.
Raspberry Borer, 178.
" Canes, Ripening of, 272.
" Flowering, 87.
" Krigh, 276.
" Queen of the Market, 16.
" Root Insect, 143.
" Sweet Home Black Cap, 111.
" Weatherbee, 81.
Readers and Advertisers, 63.
Red Cedar, 40.
" Colchican, Maple, 359.
Restoring Withered Leaves, 218.
Resurrection Plant, 245.
Retrogression, 345.
Rhododendrons, 360.
Ribston Pippin Apple, 304.
Rickett's Grapes, 112.
Ring Marks in Trees, 184.
Rings, Annual in Trees, 309.
Ripening of Raspberry Canes, 272, 339, 370.
Rivers' Early Silver Peach, 208.
Roads and Paths, 227.
" Improved, 3.
" Public, 69.
Rocks, Water on, 246.
Rocky Mountain Evergreens, 83.
Roestelia cancellata, 308.
Roofs, Glass, 203.
Root Pruning, 47.
Rosebank Nurseries, 188.
Rose, American Banner, 357.
" Best, 294.
" Bug Larva, Damage by, 138.
" Change in a, 281.
" China pink, 284.
" Comtesse Riga du Parc, 203.
" Cornelia Koch, 327.
" Culture in America, 133.
" Greeks and the, 249.
" Jean Ducher, 3.
" Jules Chretien, 134.
" La France, 229, 293.
" Laurel on Oleander, 43.
" Marechal Niel, 329, 330.
" Disease, 268.
" Large, 236.
" on Lady Banks, 284.
" Origin, 100, 136.
" Moss, Introduction of, 323.
" Noisette, 315.

Rose, Novelty in, 9.
" Nursery, Hereford, Eng., 326.
" Perle des Jardens, 334.
" Striped Louis Philippe, 135.
" Trade, Cut Tea, 264.
Roses, 326.
" American, 258, 259, 260.
" Climbing H. P., 360.
" Cross-fertilizing & Raising from Seed Eng., 322.
" French collection, 326.
" Hardy Ever-blooming, 227.
" Hybrid Perpetual, 260, 322.
" in Europe, 70, 226.
" Laxton on, 376.
" List of Questions on, 101.
" Popular, 228.
" Seedling, Raising, 5.
" Standard, 196.
" Tree, 358.
" Too Many, 101.
Rosewood, 221.
Rot, Grape, 112.
Rothrock, Dr. J. T., 253.
Rubus Phoenicolasus, 10.
Rupp's Primroses, 104.
Rust, 208.
" Black, 8.
Rydgers' Amer'n Fruit Dryer, 339.

S

Sad if True, Wearing out of Soils, 56.
Sago Palm, Rooting a, 268.
Sales, Auction, 167, 172.
Salmon in American Rivers, 25.
Salt on Walks, 327.
" Lake City, Potato in, 315.
Salvia farinacea, 4, 326.
" splend. corulea, 11, 42, 87.
Salvias, 172.
San Francisco, Golden Gate Park, 101.
Sands, Samuel, 186.
Sap, Freezing in Plants, 55, 247.
Sash Bars, 266, 330, [28].
Scale on Orchard Trees, 242.
Scarcity of Hemlock, 114.
Schinus Molle, 360.
Schumacher Peach, 81, 177, 276.
Science by Rev. Jos. Cook, 54.
" in Australia, 151.
" is Common Sense, 154.
Scions, Garden, 325, 356.
Scraping Bark of Trees, 47.
Scribner, Strawberries in, 80.
Scriptures, Shittim Wood of, 346.
Sea Radish, 305.
Seasons, Peculiarities of, 345.
Seckel Pear, The Original, 270, 272, 339, 370.
Seedling Grape, 340.
" Roses, Raising, 5.
Seed Shop, Ancient, 221.
Seedsman, Dignity of a, 185.
Selecting Grafts Fruit Trees, 50.
Sex in Fertilization, Influences of, 217.
Shaw, Henry, 317.
Shells for Roads, 123.
Shittim Wood of Bible, 346.
Short Hand without a Teacher, Notes, 14, [94].
Shortia Calacifolia, 150.
Silk before the Revolution, 183.
" Worms, 184.
Situations and Gardeners, 154, 311.
Skylarks in America, 88, 100, 149.
Slate, Greenhouses Build'g, 263.
Slitting Bark of Trees, 79, 303.
Small Conservatories, Heating, 140.
Smith's Improved Gooseberry, Snowball, Japan, 134, 210.
Soil Firming, 143.
Solanum azureum, 367.
Souchet, M., Death of, 190.
South, Apples for, 242.
" Carolina Fossils, 123.
" Garden, 166.

South Carolina Notes from, 215.
" Pear Growing in, 81.
Southern Cal. Ferns, 180, 212.
" Enterprize, 377.
" Peaches, New, 304.
Spade vs. Plough, 337.
Sparrow, English, 276.
Species, Disappearance of, Periodical, 21.
Spiraea, aruncus, 40.
" lobata, 101.
" palmata, 262.
Spores, Fungus, 216.
Spring Flowers, Early Virginian, 149.
Springs, 184.
Spruce, Hemlock, 294.
" Scarcity of, 114.
Squares, Public, of Phila., 226.
Squashes, Lecture on, 188.
Standard and other Gooseberries, 241, 303.
" or Tree Wistarias, Plants, 198, [228].
" Roses, 196.

Stanhopeas, 364.
Statistics of Arboriculture, 17.
" Timber, 146.
Stauffer, Jacob, Death of, 128.
Stealing Flowers, 349.
Steam Heating in Greenhouses, 107, 137, 169, 233, 265.
Stephanotis floribunda, 202, 297.
Stillingia sebifera, Tallow Stoves, Lamp, 140 [Tree, 182].
Stramonium, Poisoning by, 246.
Strawberries, Cream of the, 273.
" Best, 81.
" English, 48.
" Hybridizing, 177.
" in Scribner, 80.
" Popular, 273.
Strawberry, Durn, 209.
" Early, 273.
" Kirkwood, 273.
" Lennig's, White, 80.
" Roots, Aphs on, 177.
Striped Pelargoniums, 365.
" Rose, Louis Philippe, 135.
Success Small Fruits, 158, 222.
Sulphuric Acid as Manure, 123.
Sumac, How to Prepare, 114.
Summer Greenhouse Plants 138.
Sunflowers in Autumn, 327.
Sunrise, Amaranth, 138.
Swamp Muck, 209, 368.
Sweet Alyssum, New Double Variety, 236.
" Home Black Cap Raspberry, 111.
" Pippin Apple, 207.
" Potatoes, 14.
" Potato in England, 113.
Symphytum Asperum, 101.

T

Table Decorations, 367.
Talk about Coleuses, 67.
Tall Gum Tree, 307.
Tallow Tree, 182.
Tanner's Fast, 280.
Taste in Gardening, Varying, 101.
Tea Culture in U. S., 278.
" " Saunders', 61.
" Roses, List of, 260.
" Rose, Jean Ducher, 3.
" Trade, Cut, 264.
Temperature, Winter, 269.
Tender Plants, Frames for, 107.
Terra Cotta, 283.
Terrapins, 154.
Taxes, Horticulture in, 287.
Thanks, 106.
Thuja Standishii, 216.
Timber Culture, Profits of, 147.
" Durability of, 52, 116.
" Growth of, 179.
" Statistics, 146.
Tin, 346.
Tobacco Stems and Camphor, 336.
Tomatoes in England, 48.
" Winter, 49.

Tomato, Turban, 81
 Tom Thumb Arborvitæ, 134
 Too Many Roses, 101
 Torenia Fournieri, 10
 Torenia fragrans, 43
 Toughened Glass, 10
 Trade, Apple, 241
 Tradescantia multicolor, 43
 Transplantation of Trees in Belgium, 167
 Trapping Dogs and Cats, 273
 Treatment Cool Orchids, 71
 Trimmed Yew Tree, 34
 Trumpet Vines, 262
 Tree Box Evergreen, 218
 " Combinations, 327
 " Maiden Hair, 151
 " Planting in Mass., 143
 " " Nebraska, 53
 " Roses, 358
 " Whistling, 151
 " Wonderful, 115
 Trees, American, in French Gardens, 262
 " and Yellow Fever, 4
 " Annual Rings in, 309
 " Forest, Fertility of, 17
 " Girdling, 309
 " Growing in European Ruins, 219
 " in Frozen Soil, Growth of 246
 " of Fairmount Park, 250
 " Humphrey Marshall, 16
 " Measuring Height of, 53
 " Memorial, 38, 133, 268, 359
 " Planting, 146
 " Protection from Sun, 302
 " Pruning Injured, 133
 " Scraping Bark of, 47
 " Slitting Bark of, 79, 303
 " Southern Kansas, 148
 " Whitewashing, 15
 Tuberoses, New Method, 356
 Turban Tomato, 81
 Turkish Hazel Nut Trade, 14
 Two Well-kept Places, 35
 Tyson Pear, 304

U

Upright Gloxinias, 9
 United States Consul, Florence, on Chestnut Flour, 218
 U. S. Tea Culture in, 278
 Useful Plants Counted by Dr. Rosenthal, 249
 Uses of the Walnut, 115
 "U. Wait," or a Plumber Well Named, 185

V

Variations in Late Introductions, 284
 Variegated Ailanthus, 327
 Varieties Asclepias, Three, 245
 " Norway Spruce, 360
 " Pitcher Plants, 217
 " Vegetables, 80
 " Wearing out of, 54
 Various Gardens, 47
 Varnish Plant, New, 345
 Varying Taste in Gardening, 101
 Vegetables and Beauty, 82
 " Mexican, 273
 " Varieties of, 80
 Vegetation and Electricity, 154
 Verbena Culture, 106
 " venosa, 325
 Verbenas, New, 326
 Verschaffelt, Jean Nuytens, Death of, 253
 Vine Disease, 25
 " Garden, 39
 Vines, Trumpet, 262
 Vineyards, French, 287
 Virginia Autumn Scenery, 344
 " Early Spring Flowers, 149
 Vitis Incisa, 281

W

Walks, Salt on, 327
 Wallflower, 43

Walnut and its Uses, 115
 Waratah, The, 151
 Washington Territory, 118
 Water, Artificial Gardens, 241
 " Cress, Growing, 55
 " Fishy, Dust in, 251
 " Melon, Large, 276
 " on Rocks, 246
 Waterloo Peach, 177
 Wax, Chinese, 219
 " for Coating Marble, 218
 Wax-Wort, 282
 Wearing out of Varieties, 54
 Weatherbee Raspberry, 81
 Weeds, Soldiers to Kill, 56
 Well-kept Places, Two, 35
 Wheat Culture, 350
 " Cheat, How to Tell, 316
 Western Farmer, America, 374
 West Park Decorations, 354
 Whistling Tree, 151
 White Grapes, 15
 " Japan Cucumber, 81
 " Strawberry, Lening's, 81
 Whitewashing Trees, 15 [80]
 Whitewash, Permanent, 82
 Wickersham Process, Preserving Animals and Vegetables, 14
 Wild Caladium, 311
 " Grape, Odor of, 250
 Wilder, Col. and Pears, 242
 " " Health of, 60
 " " Grapes from, 340
 " " Notes from, 191
 " " Portrait of, 60
 Willermorz, M., Death of, 31
 Williams, Dr. A. C., no address, 127
 Willow, Napoleon's, 317
 Wilson's School-house, 248, 314
 Wilson, The Ornithologist, 248
 Window Gardens, 30, 203
 " Plants, Gas Injurious, 106
 Winter Apple, Penn., 81
 " Climbers, 7
 " Cut Flowers, Carnation, P. Henderson, 267

Winter Destruction Plants, 216
 " European, The, 100
 " Flowers, German Method, 77
 " Gardens, 101
 " Mild, Bad Effects of, 13
 " Nelis Pear, 112
 " Temperature, 269
 " Tomatoes, 49
 Wire Fences, Barbed, 38
 " Galvanized, Injurious to Plants, 283
 Wistaria, 218
 " Fruiting of, 24
 Wistarias, Tree or Stand, 228
 Wodenethe, 36
 Women in Horticulture, 290
 Wonderful Tree, 115
 Woodbine, 313
 Wood, Catalpa, 179
 " Durability of, 52
 " for Paper Makers, 307
 " in Penna., Scarcity, 82
 " Lice, Destroying, 166
 " of the Pawlonia, 82
 Worcester Co., Mass., Hort. Society, 64, 95
 Workshop Companion, 94
 Wylie's Dr., Grapes, 48

X

Xanthoceros sorbifolia, 294

Y

Year, Lancashire Garden, 57
 " Fungus to Kill Insects 369
 Yeast as an Insect Killer, 218
 Yellow Fever, Trees and, 4
 Yellows, Peach, 49, 145, 243, 339
 Yew, Irish, 227
 " Tree, Moving a large, 218
 " Trimmed, 34
 Yucca, Fertilization of, 121, 214
 " gloriosa, 326 [279]
 " Moths, 248

**End of
Volume**